BEST CONTACTS FOR YOUR SUCCESS

Telegärtner
KARL GÄRTNER GMBH

- NETWORKING COMPONENTS
- COAXIAL CONNECTORS
- CABLE ASSEMBLIES
- PRECISION TURNED PARTS
- PLASTIC INJECTION MOULD PARTS
- INDUSTRIAL ELECTRONICS

Components for Mobile Radio Base Stations

RF Components
Fiber Optic and RJ45 Components

All products are shown in our **online catalogue**
www.telegaertner.com

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Print
Druckerei Raisch

Edition
Components for Mobile Radio Base Stations

Contents

Telegärtner

Best Contacts for your Success

Telegärtner Karl Gärtner GmbH in Steinenbronn near Stuttgart is an internationally operative full provider for professional solutions in connection technology. The traditional company produces and sells RF coaxial connectors, networking solutions for structured building cabling and modular programmes in the industrial and fiber optic sector.

In its 66 year history Telegärtner Karl Gärtner GmbH has evolved from a spare parts supplier for telephone installations for American barracks to one of the top addresses for coaxial connectors, Data Voice components and cable assembly. But this remarkable development was only possible because the demands of the traditional company have not changed in all these years. Telegärtner does not just want to produce good quality but to give customers excellent solutions with which they can work successfully.

Telegärtner meets high tech demands and satisfies conventional customer needs with great commitment. Regardless of whether a large or small series is required, Telegärtner is the ideal standard supplier and development partner for customers who demand and expect the best contacts for their success.

Detailed information about Telegärtner as well as our online catalogue you can find at: **www.telegaertner.com**

Telegärtner Coax Products

The right solution for all requirements

Telegärtner RF connectors all have three distinguishing features: They are readily available, high quality and tailor-made for the application. With a wide standard programme of RF connectors for fast availability and the Telegärtner added quality and reliability in every product, Telegärtner always offers you the best solution for your application.

Standard range

Every product from Telegärtner's standard range offers you added value: for example with lower failure rates or greater power reserves. The Telegärtner standard range includes RF connectors of the BNC, TNC, N, UHF, Mini-UHF, FME, QLS, SMA, SMB/ SMC/SMS, SSMB, MCX, MMCX, SMP, 1.6/5.6, 7-16, R-TNC, R-SMA, R-BNC, F, UMTC and pH series as well as adapters. RF cable assemblies round off the Telegärtner products in this range perfectly.

Special solutions

Are you looking for a solution for small and medium-sized batches? You do not want to waste time? Then Telegärtner should be your first choice. Fast response, short development cycles, qualified consulting and prompt logistics, that is what you are looking for as a customer and where Telegärtner can give you the cutting edge. With many thousands of developed special solutions. And a CAD database with more than 15,000 single parts. This customised solution is invaluable especially for small and medium-sized series. And: A special solution is often not as expensive as you think!

Telegärtner DataVoice

Everything for Structured Building Cabling

With the DataVoice product portfolio, Telegärtner offers a reliable professional total system for everything to do with building wiring: from products forthe complete wiring of copper and fiber optic networks to professional connectors for industry.

Telegärtner offers you a comprehensive program of high quality connection components for the data and telecommunications throughout the building. This kicks off with a complete FO program which can be delivered pre-assembled, continues in the office environment with extensive network solutions does not stop at the industrial environment with extremely reliable RJ45 connector systems for harsh ambient conditions.

In addition to high performance active and passive components for transmission by copper cable, you also get connection and distributor components for fiber optic technology from us. This is all rounded off by our cable assembly for a complete, structured building cabling.
The DataVoice range is enhanced by products for factory, machine and plant wiring: The Telegärtner industrial connectors of variant 1, variant 4, variant 5, variant 6 and variant 14 offer standard conformant solutions which can be flexibly combined – without annoying adaptations. Because the freely selectable inserts can easily be inserted into all IP67 housings. There is nothing easier and at the same time more reliable for modern, gigabit fast hall, machine and plant networks.

Telegärtner DataVoice: All from one provider and always with that added Telegärtner quality and reliability – in every component.

Telegärtner Quality

Connectors for highest demands

Policy on Quality

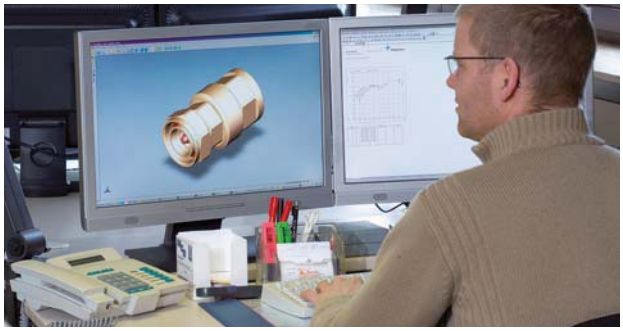
Because we always want to offer you, our customers, the best contacts, our quality expectations go far beyond standard. Accordingly, we view ISO as merely a standard for quality – Telegärtner quality, on the other hand, is something we improve daily. It is with this in mind that we have instituted a quality assurance programme according to DIN EN ISO 9001:2000 und DIN EN ISO 14001:2004 from goods received, through manufacturing up to shipping and maintenance. A CAQ programme, the most up-to-date measuring and testing tools, optical and 3D measuring systems, quality consciousness by our employees and the continual optimisation of the Total Quality Management: That´s what makes Telegärtner so unique.

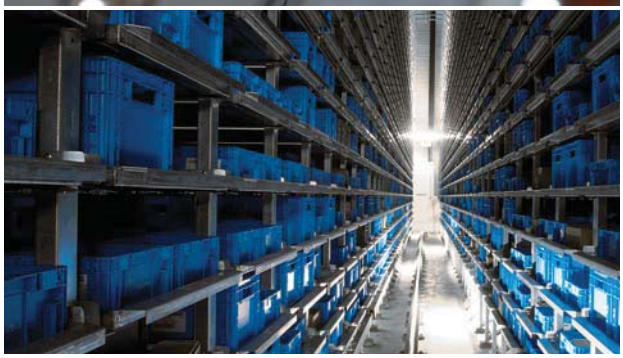
Development and Manufacturing

The products developed with CAD are optimized in our labs with the aid of network analysers and intermodulation test benches. A well-balanced ratio between fully automated, semi-automated and manual manufacturing processes guarantees a high level of flexibility. In addition to the wide range of standard types listed in this catalogue, a multitude of special designs are also available. Additional products can be – and are – developed and manufactured based on your specifications.

Delivery Service

The Telegärtner brand stands for 50 years of pronounced customer orientation. Starting in the manufacturing, where we consider your requests up to the delivery, where we do more than necessary, to afford you the best contacts in the right place at the right time. A fully automated state-of-the-art warehouse with more than 28,000 containers assures, that you don´t have to wait long for their goods. 24-hour delivery time ex warehouse: This is the figure against which you can measure the performance of our logistic department.



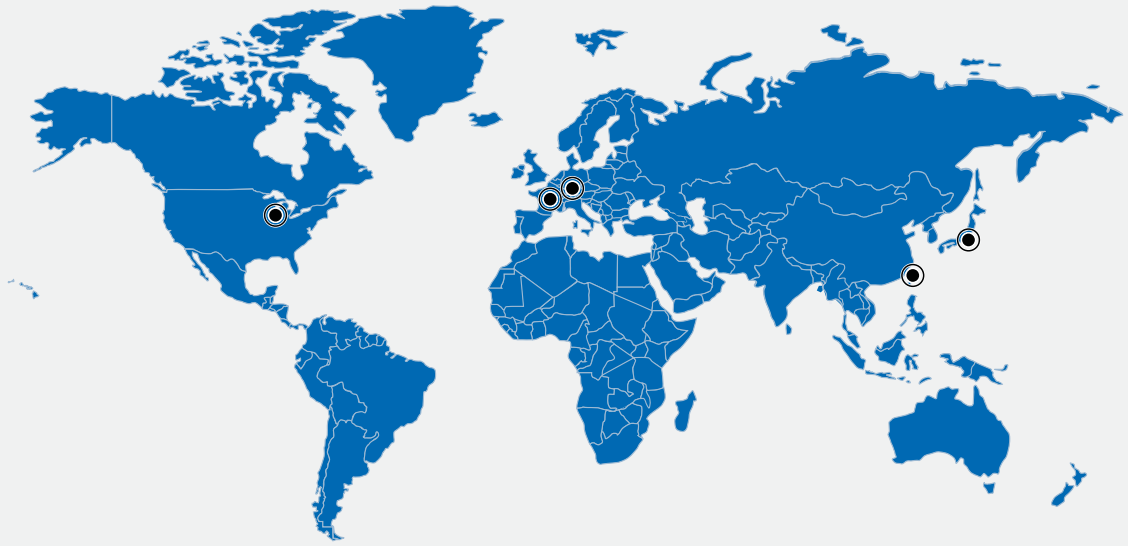


Worldwide Sales Paths – Telegärtner Connects the World

Whether in Tokyo, Johannesburg, or London – Telegärtner is represented throughout the world. From A as in Auckland through S as in Singapore, to W as in Warsaw in Poland. Naturally, all products comply with the applicable international standards. Other Telegärtner Group production facilities and sales offices lie far beyond the boundaries of Germany: in France, Japan, Taiwan, USA …

Telegärtner worldwide
You will find Telegärtner agents always up to date on our homepage www.telegaertner.com

Subsidiaries and Representations



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- **Telegärtner Elektronik GmbH**, Crailsheim, Germany
- **Telegärtner Gerätebau GmbH**, Höckendorf, Germany
- **Japan Telegärtner Ltd.**, Tokyo, Japan
- **Telegärtner France SARL**, Paris, France
- **Telegärtner Taiwan Co., Ltd.**, Taipei City, Taiwan
- **Telegärtner Inc.**, Chicago, USA

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Subsidiary

1 Connectors

SIM*Fix*® – Connectors for corrugated cables

The RF connectors in the series SIM*Fix*® are rugged connectors with threaded coupling for use in high performance transmitter applications. These connectors are waterproof and are suitable for external use. Furthermore, they are designed to provide excellent technical performance, especially concerning return loss and intermodulation.
The SIM*Fix*® range includes RF connectors for terminating 1/4", 1/2" flex, 1/2", 7/8", 1 1/2" and 1 5/8" sized corrugated cables.

Assembly for all sizes is simple and reliable, thus guaranteeing constantly good electrical performance with regard to return loss and intermodulation.
Ease of termination of the cables has been greatly enhanced by the use of specially developed tooling, which allows for exact stripping of the corrugated cables in the shortest of time.

SIM*Fix*® Pro Series – IP 68

Special seals on the sheath and outer conductor of the cable provide reliable protection against the ingress of water. Tested to a pressure of 2.5 bar (equivalent to water pressure at a depth of 25 m), a high degree of security against damage from water is guaranteed – even after years of service – in every climate, world-wide.

SIM*Fix*® ST Series – IP 67

The SIM*Fix*® ST (Short Type) range is the shorter version of the SIM*Fix*® Pro connectors. It has almost the same design as the SIM*Fix*® Pro except for the sealing, which is specified IP 67. Application areas are where especially short and cost-efficient connectors are needed, indoor applications or where additional sealing by taping is done.

SIM*Fix*® CA Series (Pro/ST)

The SIM*Fix*® CA series is a new generation of Telegärtner RF connectors for use with cables with both copper or aluminium outer conductors. As with the well tried and trusted SIM*Fix*® connectors, sealing is achieved through actively compressed O-rings. The SIM*Fix*® CA connectors are available in the **Pro** (IP68) design, with sealing on the sheath and outer conductor, as well as the **ST** design, with sealing on the outer conductor only (short type), as a more cost-effective alternative.

Other available connector types

Telegärtner connectors for feeder and jumper cables (highly flexible) are available in 3 different types, as follows:
SIM*Fix*®: For quick and easy assembly. Designed for feeder cables. Watertight.
Standard: Watertight types for feeder and jumper cables.
Short: Compact types for feeder and jumper cables.
Self-adhesive sleeving is necessary for watertight external installation.

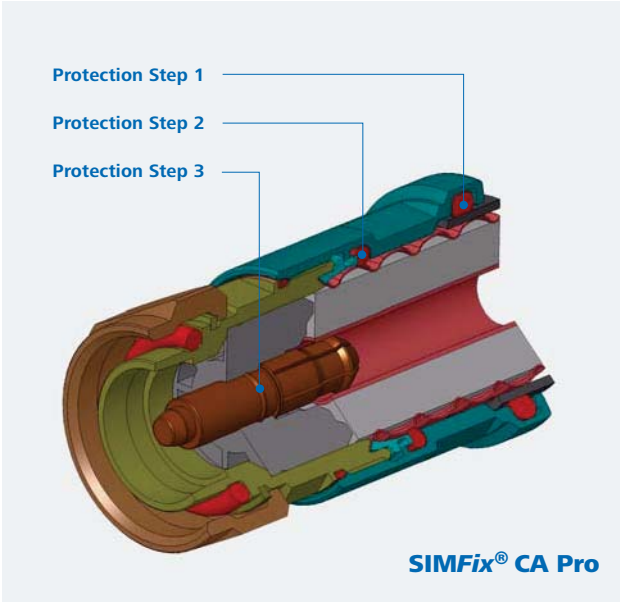
SIM*Fix*® Pro – IP 68: Waterproof with a high margin of safety

3-fold protection concept

Protection Step 1:
An O-ring on the outer jacket of the cable guarantees reliable protection against the ingress of water in normal applications of an undamaged cable.

Protection Step 2:
A special sealing to the outer conductor of the cable. Damage to the cable's outer jacket poses the danger that water will enter the connector between the outer jacket and the outer conductor of the cable. This is prevented by the additional sealing.

Protection Step 3:
Barrier sealed by protective steps taken on centre contact. Massive destruction of the cable resulting in water ingress into the dielectric and possibly even into the inner conductor can destroy the following cable segment and even damage the base station, if water is able to seep through the connector.



Easy and fast assembly using special tools


N00091A0022


N00091B0019


N00099A0010

Manual tool

- Cutting the sheath, outer conductor, dielectric and center conductor to size
- Burr removal on the center conductor
- Flaring the outer conductor
- Screw for fine adjustment of the cutting depth

Rotating tool

- For cable preparation with electric drill
- Cutting the sheath, outer conductor, dielectric, and inner conductor to size
- Includes separate tooling for flaring and burr removal

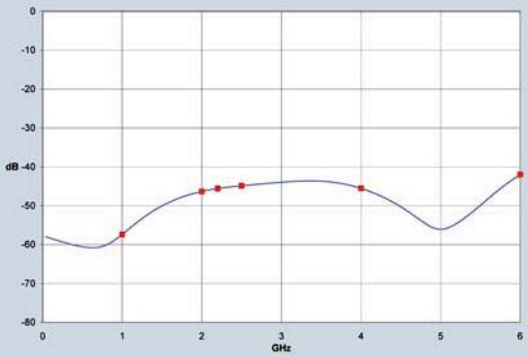
Up-grading kit for manual tool

- Adapter with bolt for extending the flare insert of SIM*Fix*® tool (N00091A0014)
- Up-graded version suitable for both SIM*Fix*® and SIM*Fix*® CA

Technical Data Series 7-16 and N

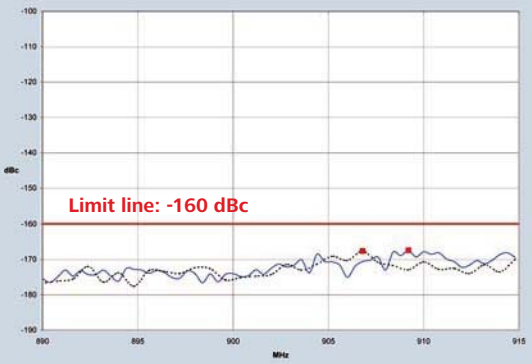
Excellent electrical performance. Trouble-free transmission in mobile networks.

Return Loss (J01120G0085 typ.)



1: 1,0 GHz = -57,4 dB
2: 2,0 GHz = -46,3 dB
3: 2,0 GHz = -45,6 dB
4: 2,0 GHz = -44,9 dB
5: 4,0 GHz = -45,5 dB
6: 6,0 GHz = -42,0 dB

Intermodulation (J01120G0085 typ.)



F1 UP (SolidLine)
from = 925 MHz to = 940,8 MHz
IM3 = -167,4 dBc at 909,2 MHz
Carrier Power Level = 43 dBm

F2 DOWN (DotLine)
from = 960 MHz to = 933,4 MHz
IM3 = -167,6 dBc at 906,8 MHz
CPL = 43 dBm

Mechanical Characteristics Series 7-16	
Finish	
Inner conductor	Silver
Other conductive parts	Silver or silver with Telealloy flash (CuSnZn3)
Other parts	Silver, Nickel or Telealloy (CuSnZn3)
Coupling torque	25-35 Nm
Durability (mating cycles)	> 500
Thermal and Climatic Characteristics	
Category to DIN IEC 68 Part 1	55/155/56
Protection to IEC 60529	
SIMFix Pro types	IP 68 (2.5 bar, axially and radially watertight)
SIMFix ST, short type with shrink sleeving and Standard types	IP 67
Electrical Characteristics	
Contact resistance (only) inner contact	< 0.1 mΩ
Contact resistance (overall) inner contact	< 0.4 mΩ
Contact resistance (only) outer contact	< 0.1 mΩ
Contact resistance (overall) outer contact	< 0.2 mΩ
Insulation resistance	> 10 GΩ
Voltage proof	4 kV_{eff}/50 Hz
Impedance	50 Ω
Working voltage	< 2.7 kV_{eff}/50 Hz
Power handling	1.8 kW/1 GHz
Intermodulation	
Intermodulation product 3rd. Order (typical); 2 unmodulated test signals at 43 dBm (20 W)	
at 800-1000 MHz	-117 dBm/-160 dBc
at 1600-2000 MHz	-112 dBm/-155 dBc

Mechanical Characteristics Series N	
Finish	
Inner conductor	Silver
Other conductive parts	Silver or silver with Telealloy flash (CuSnZn3)
Other parts	Silver, Nickel or Telealloy (CuSnZn3)
Coupling torque	4-6 Nm
Durability (mating cycles)	> 500
Thermal and Climatic Characteristics	
Category to DIN IEC 68 Part 1	40/155/21
Protection to IEC 60529	
SIMFix Pro types	IP 68 (2.5 bar, axially and radially watertight)
SIMFix ST, short type with shrink sleeving and Standard types	IP 67
Electrical Characteristics	
Contact resistance (overall) inner contact	< 2 mΩ
Contact resistance (overall) outer contact	< 0.5 mΩ
Insulation resistance	> 5 GΩ
Voltage proof	2.5 kV_{eff}/50 Hz
Impedance	50 Ω
Working voltage	< 1 kV_{eff}/50 Hz
Intermodulation	
Intermodulation product 3rd. Order (typical); 2 unmodulated test signals at 43 dBm (20 W)	
at 800-1000 MHz	-117 dBm/-160 dBc
at 1600-2000 MHz	-112 dBm/-155 dBc

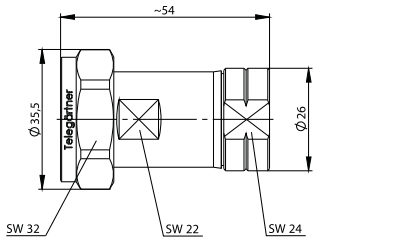
1/2" FLEX

Connectors for 1/2" Highly Flexible Cables

Stripping Tool

Cable Types
- RFF 1/2"-50
- FSJ4-50B
- SCF 12-50J
- Eupen 5092
- HPL50-1/2-SF
- HFSC 12D
- Flexline 1/2"S

Series 7-16



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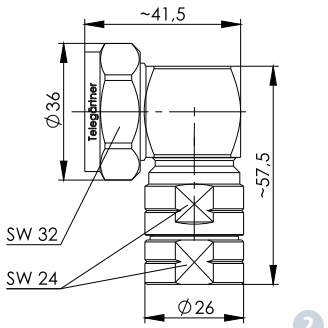

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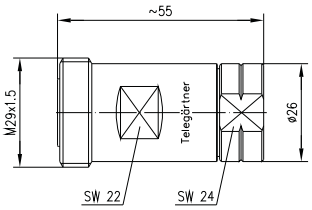
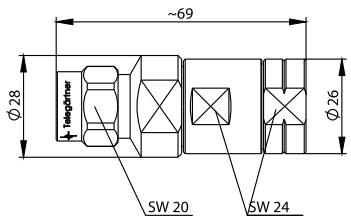


3

Series	Design	Type	Protection Class	Order no.	Tool	Fig.
7-16	Straight plug	SIMFix Pro	IP 68	J01120B0077	N00091A0013	1
7-16	Straight plug	SIMFix ST	IP 67	J01120B0073	N00091A0004	1
7-16	Angle plug	SIMFix Pro	IP 68	J01120A0094	N00091A0013	2
7-16	Straight jack	SIMFix Pro	IP 68	J01121B0120	N00091A0013	3
7-16	Straight jack	SIMFix ST	IP 67	J01121B0114	N00091A0004	3

Series N



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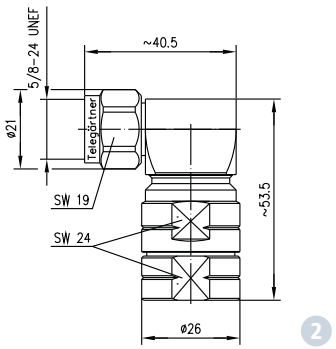

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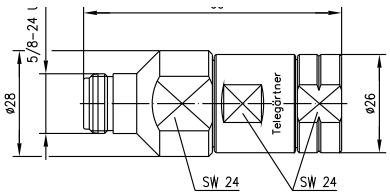


3

Series	Design	Type	Protection Class	Order no.	Tool	Fig.
N	Straight plug	SIMFix Pro	IP 68	J01020A0105	N00091A0013	1
N	Straight plug	SIMFix ST	IP 67	J01020A0098	N00091A0004	1
N	Angle plug	SIMFix Pro	IP 68	J01020A0147	N00091A0013	2
N	Straight jack	SIMFix Pro	IP 68	J01021A0163	N00091A0013	3
N	Straight jack	SIMFix ST	IP 67	J01021A0156	N00091A0004	3

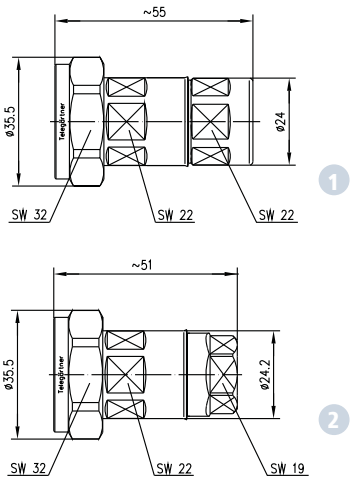
1/2“

Connectors for 1/2“ Corrugated Cables

Cable Types
- LCF 12-50
- Eupen 5128
- LDF4-50A
- HPL50-1/2
- 10D-SFCR
- HFC 12D
- RFA 1/2“-50

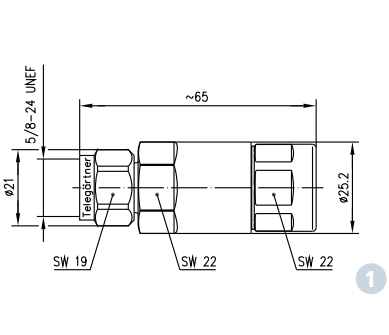
Stripping Tools
for electric drills manual

Series 7-16



Series	Design	Type	Protection Class	Order no.	Tool		Fig.
					Manual	Electric	
7-16	Straight plug	SIMFix Pro	IP 68	J01120G0085	N00091A0015	N00091B0018	1
7-16	Straight plug	SIMFix ST	IP 67	J01120H0085	N00091A0015	N00091B0018	2
7-16	Angle plug	SIMFix Pro	IP 68	J01120B0026	N00091A0015	N00091B0018	3
7-16	Straight jack	SIMFix Pro	IP 68	J01121G0136	N00091A0015	N00091B0018	4
7-16	Straight jack	SIMFix ST	IP 67	J01121H0136	N00091A0015	N00091B0018	5

Series N



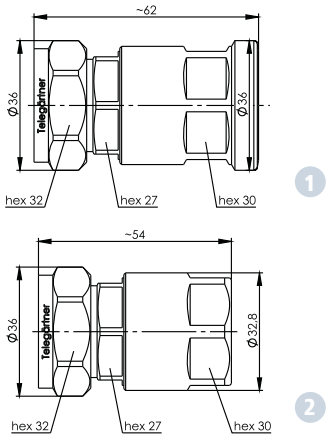
Series	Design	Type	Protection Class	Order no.	Tool		Fig.
					Manual	Electric	
N	Straight plug	SIMFix Pro	IP 68	J01020G0141	N00091A0015	N00091B0018	1
N	Angle plug	SIMFix Pro	IP 68	J01020B0044	N00091A0015	N00091B0018	2
N	Straight jack	SIMFix Pro	IP 68	J01021G0174	N00091A0015	N00091B0018	3

Connectors for 7/8" Corrugated Cables

Stripping Tools
for electric drills manual

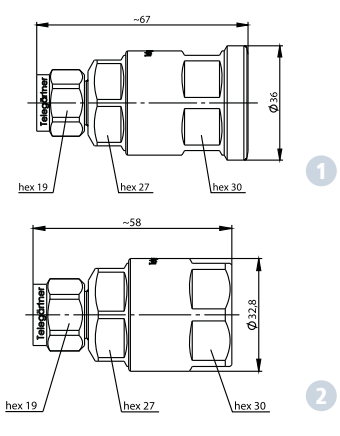
Cable Types
- RFA 7/8"-50
- RFA 7/8"-50 AL
- Eupen 5228A
- Eupen 5227
- HPL50-7/8
- HPL50-7/8 AL
- LCF 78-50A
- 20D-SFCR
- HFC 22D
- AVA5-50
- AL5-50
- LDF5-50A
- RFX 7/8"-50

Series 7-16



Series	Design	Type	Protection Class	Order no.	Tool		Fig.
					Manual	Electric	
7-16	Straight plug	SIMFix CA-Pro	IP 68	J01120A0104	N00091A0022	N00091B0019	1
7-16	Straight plug	SIMFix CA-ST	IP 67	J01120B0104	N00091A0022	N00091B0019	2
7-16	Straight jack	SIMFix CA-Pro	IP 68	J01121A0180	N00091A0022	N00091B0019	3
7-16	Straight jack	SIMFix CA-ST	IP 67	J01121B0180	N00091A0022	N00091B0019	4

Series N



Series	Design	Type	Protection Class	Order no.	Tool		Fig.
					Manual	Electric	
N	Straight plug	SIMFix CA-Pro	IP 68	J01020A0153	N00091A0022	N00091B0019	1
N	Straight plug	SIMFix CA	IP 67	J01020B0153	N00091A0022	N00091B0019	2
N	Straight jack	SIMFix CA-Pro	IP 68	J01021A0201	N00091A0022	N00091B0019	3
N	Straight jack	SIMFix CA-ST	IP 67	J01021B0201	N00091A0022	N00091B0019	4

1 1/4“

Connectors for 1 1/4“ Corrugated Cables

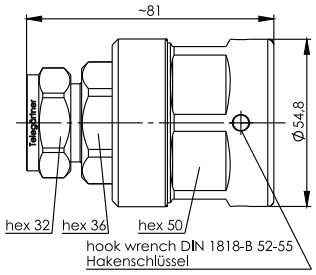
Cable Types

- RFA 1 1/4“-50
- LCF 114-50A
- Eupen 5328A
- Eupen 5327
- HPL50-1 1/4
- LDF6-50A
- RFX 1 1/4“-50
- FlexLine 1 1/4“R

Termination Tool Set

for 1 1/4“ and 1 5/8“ SIM*Fix*® Pro/ST
Order-No. R00200A0011

Series 7-16



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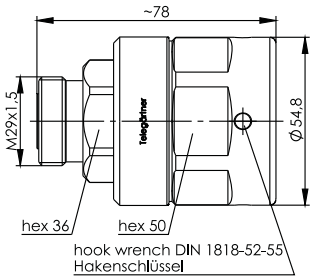

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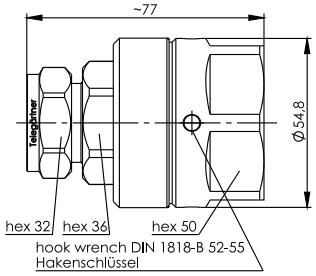

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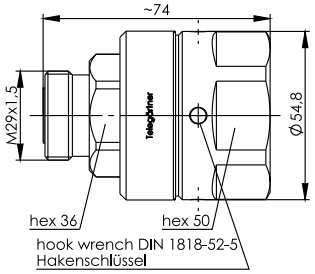

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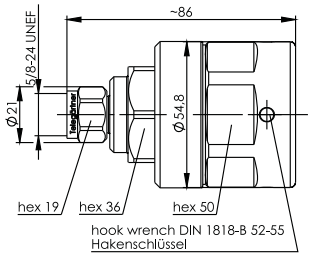
Series	Design	Type	Protection Class	Order no.	Tool	Fig.
7-16	Straight plug	SIMFix Pro	IP 68	J01120G0087	R00200A0011	1
7-16	Straight plug	SIMFix ST	IP 67	J01120H0087	R00200A0011	2
7-16	Straight jack	SIMFix Pro	IP 68	J01121G0138	R00200A0011	3
7-16	Straight jack	SIMFix ST	IP 67	J01121H0138	R00200A0011	4

Series N



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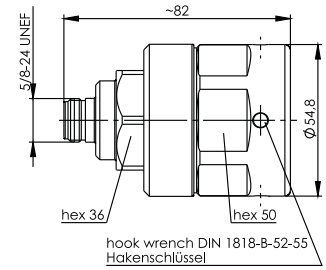

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Series	Design	Type	Protection Class	Order no.	Tool	Fig.
N	Straight plug	SIMFix Pro	IP 68	J01020G0143	R00200A0011	1
N	Straight plug	SIMFix ST	IP 67	J01020H0143	R00200A0011	-
N	Straight jack	SIMFix Pro	IP 68	J01021G0178	R00200A0011	2
N	Straight jack	SIMFix ST	IP 67	J01021H0178	R00200A0011	-

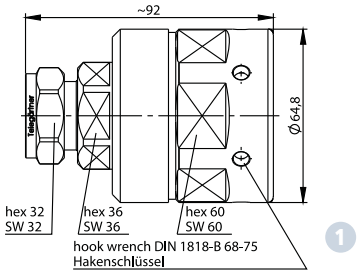
Connectors for 1 5/8" Corrugated Cables

Termination Tool Set
for 1 1/4" and 1 5/8" SIM*Fix*® Pro/ST
Order-No. R00200A0011

Cable Types

- RFA 1 5/8"-50
- LCF 158-50A
- Eupen 5438
- LDF7-50A
- FlexLine 1 5/8"
- HPL50- 1 5/8"
- HFC 42D
- AVA7-50

Series 7-16



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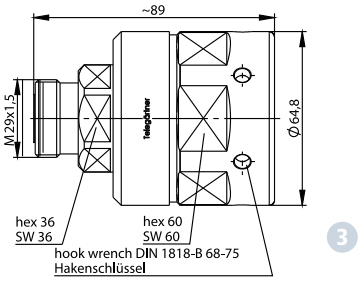

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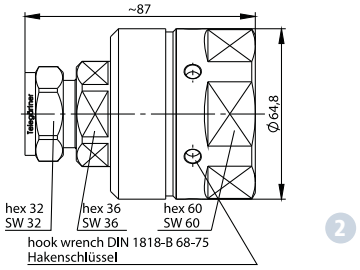

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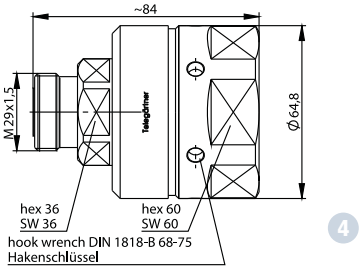

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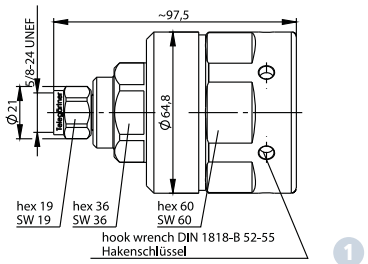
Series	Design	Type	Protection Class	Order no.	Tool	Fig.
7-16	Straight plug	SIMFix Pro	IP 68	J01120G0088	R00200A0011	1
7-16	Straight plug	SIMFix ST	IP 67	J01120H0088	R00200A0011	2
7-16	Straight jack	SIMFix Pro	IP 68	J01121G0139	R00200A0011	3
7-16	Straight jack	SIMFix ST	IP 67	J01121H0139	R00200A0011	4

Series N



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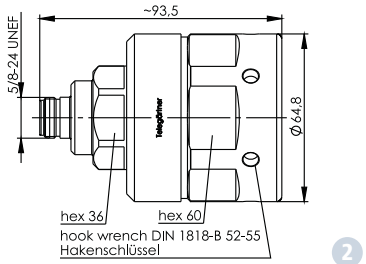

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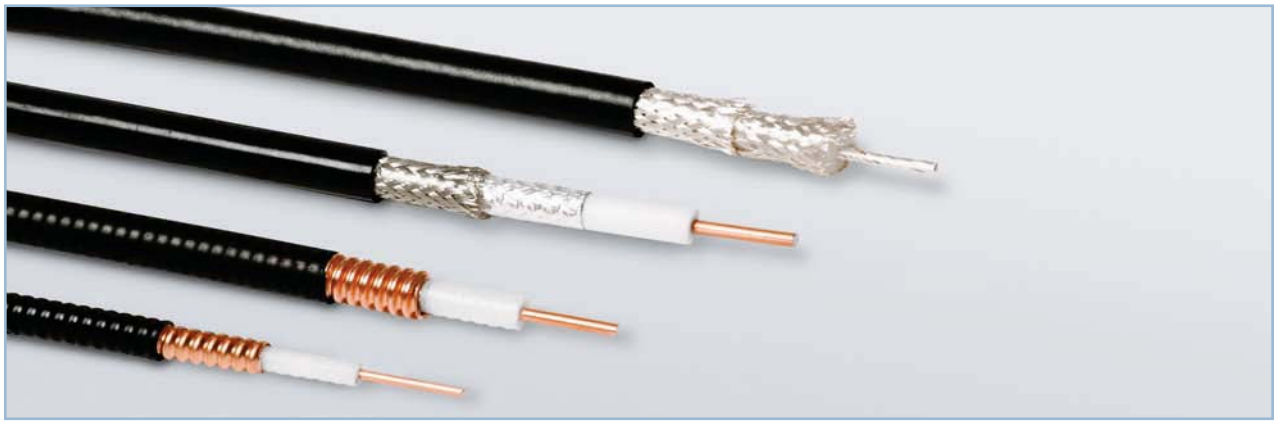
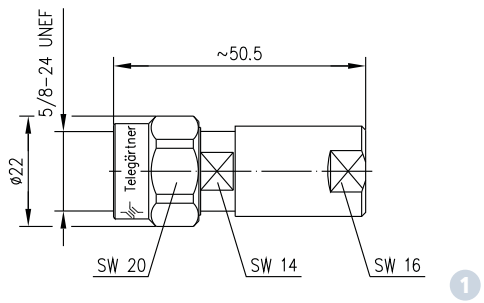
Series	Design	Type	Protection Class	Order no.	Tool	Fig.
N	Straight plug	SIMFix Pro	IP 68	J01020G0144	R00200A0011	1
N	Straight jack	SIMFix Pro	IP 68	J01021G0179	R00200A0011	2

1/4“

Connectors for 1/4“ Corrugated Cables



Connectors for 1/4“



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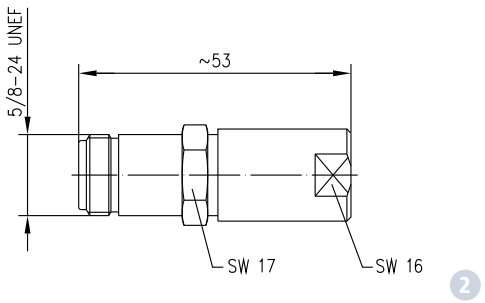

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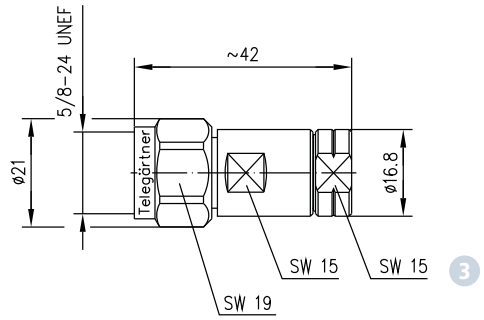

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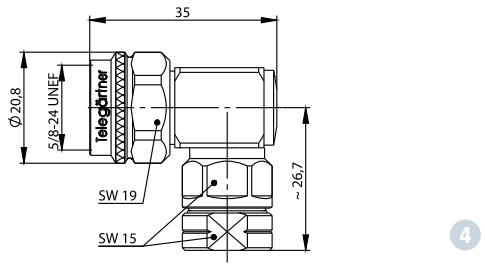

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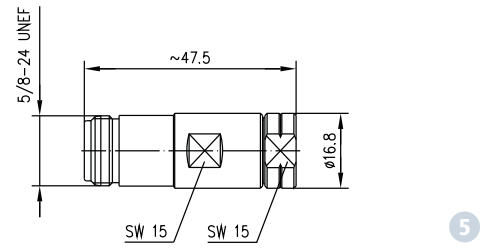
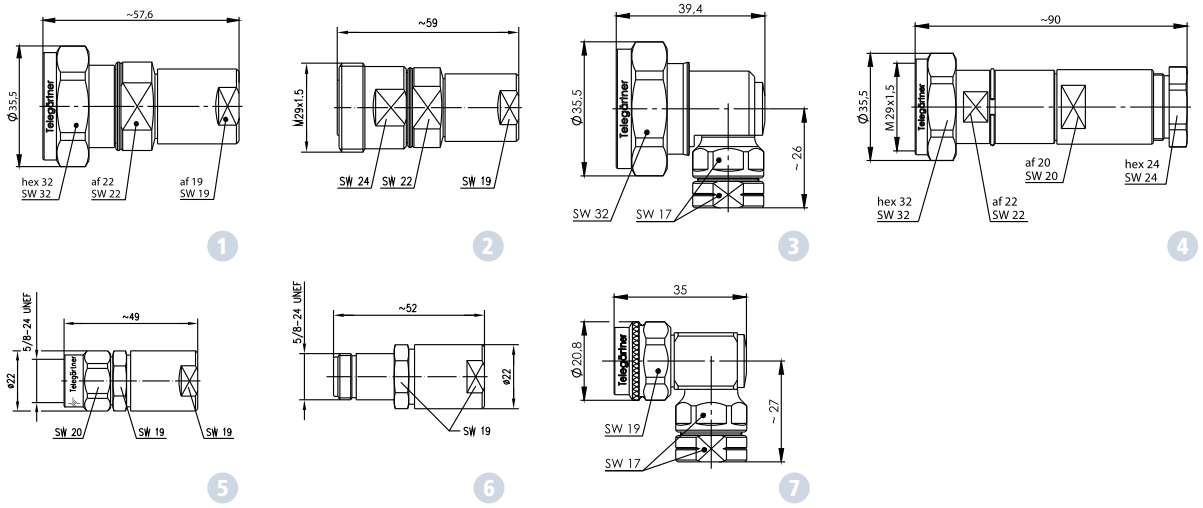


5

Ø	Cable	Series	Design	Type	Order no.	Assembly	Fig.
1/4“	CF 14-50J; Eupen 5062; HPL 50-1/4	N	Straight plug	Standard	J01020A0028	B25	1
		N	Straight jack	Standard	J01021A0043	B25	2
1/4“	FSJ1-50; RFF 1/4“ Cu2Y-50; SCF 14-50J; Eupen 5042	N	Straight plug	SIMFix	J01020A0150	B85	3
		N	Angle plug	Short	J01020C0126	B95	4
		N	Straight jack	SIMFix	J01021A0188	B85	5

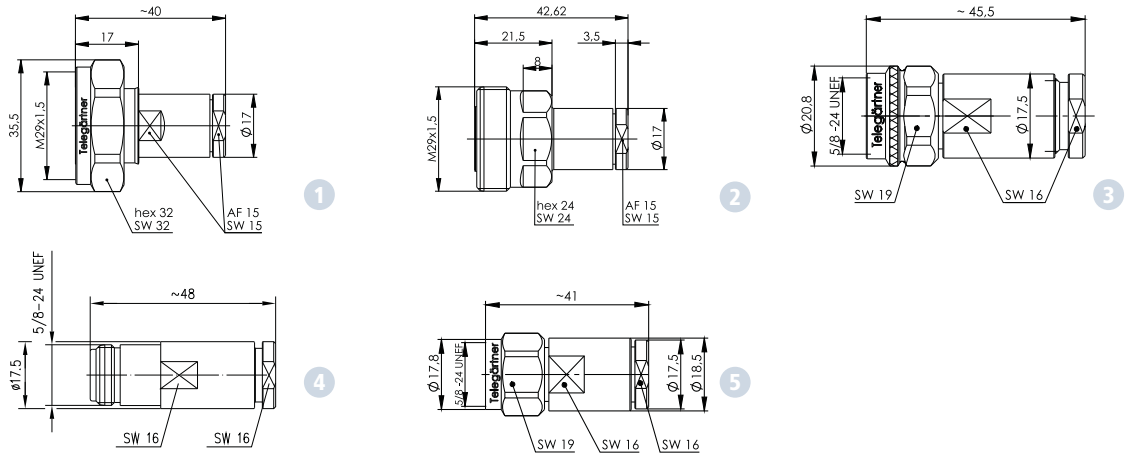
Connectors for 3/8" Corrugated Cables & Braided Cables

Connectors for 3/8"



Ø	Cable	Series	Design	Type	Order no.	Assembly	Fig.
3/8"	Eupen 5088; RF 3/8"-50;	7-16	Straight plug	Standard	J01120B0019	B31	1
	LCF 38-50J; HPL50-3/8	7-16	Straight jack	Standard	J01121A0043	B31	2
3/8"	LDF2-50	7-16	Straight plug	Standard	J01120B0022	B31	1
		7-16	Straight jack	Standard	J01121A0045	B31	2
3/8"	SCF 38-50J	7-16	Angle plug	Short	J01120D0034	D07	3
3/8"	Flexwell 3/8" Cu2Y-50	7-16	Straight plug	Standard	J01120B0733	B08	4
3/8"	Eupen 5088; RF 3/8"-50;	N	Straight plug	Standard	J01020A0010	B29	5
	LCF 38-50J; HPL50-3/8	N	Straight jack	Standard	J01021A0041	B29	6
3/8"	LDF2-50	N	Straight plug	Standard	J01020A0031	B29	5
		N	Straight jack	Standard	J01021A0045	B29	6
3/8"	SCF 38-50J	N	Angle plug	Short	J01020D0124	D07	7

Connectors for Braided Cables



Cable	Series	Type	Style*	Order no.	Assembly	Fig.
RG213; RG214;	7-16	Straight plug	Solder/Clamp	J01120A0101	B88	1
G37 (2.7/7.25); G42 (2.7/7.1)	7-16	Straight jack	Solder/Clamp	J01121A0177	B88	2
G37 (2.7/7.25); G42 (2.7/7.1)	7-16	Straight plug	Clamp/Clamp	J01120A0107	B87	1
RG213; RG214	N	Straight plug	Solder/Clamp	J01020I1070	B01	3
	N	Straight jack	Solder/Clamp	J01021H1076	B04	4
G37 (2.7/7.25); G42 (2.7/7.1)	N	Straight plug	Solder/Clamp	J01020A0149	B82	5
	N	Straight plug	Clamp/Clamp	J01020A0156	B87	5

Solder/Clamp: inner conductor: solder; outer conductor: clamp
Clamp/Clamp: inner conductor: spring; outer conductor: clamp (field; mount type)

7-16 (DIN) Connectors Overview

Ø	Cable	Cable Type	Design	Order no.	Type	IP Class	Weight
~10 mm	RG213, RG214	B	Straight plug	J01120A0101	Solder/Clamp	IP 67	80 g
	G37(2.7/7.25), G42(2.7/7.1)		Straight jack	J01121A0177	Solder/Clamp	IP 67	87 g
	G37(2.7/7.25), G42(2.7/7.1)	B	Straight plug	J01120A0103	Clamp/Clamp	IP 67	80 g
3/8"	Eupen 5088; RF 3/8"-50;	F	Straight plug	J01120B0019	Standard	IP 68	150 g
	LCF 38-50J; HPL50-3/8		Straight jack	J01121A0043	Standard	IP 68	150 g
3/8"	LDF2-50	F	Straight plug	J01120B0022	Standard	IP 68	150 g
			Straight jack	J01121A0045	Standard	IP 68	150 g
3/8"	SCF 38-50J	J	Angle plug	J01120D0034	Short	IP 54	140 g
3/8"	Flexwell 3/8" Cu2Y-50	F	Straight plug	J01120B0733	Standard	IP 67	200 g
1/2" Flex	RFF 1/2"-50; FSJ4-50B;	J	Straight plug	J01120B0077	SIMFix Pro	IP 68	170 g
	SCF 12-50J; Flexline 1/2"S		Straight plug	J01120B0073	SIMFix ST	IP 67	170 g
	Eupen 5092; HPL50-1/2-SF		Angle plug	J01120A0094	SIMFix Pro	IP 68	250 g
	HFSC 12D		Straight jack	J01121B0120	SIMFix Pro	IP 68	160 g
			Straight jack	J01121B0114	SIMFix ST	IP 67	160 g
1/2"	RFA 1/2"-50; LCF 12-50	F/X	Straight plug	J01120G0085	SIMFix Pro	IP 68	120 g
	Eupen 5128; LDF4-50A		Straight plug	J01120H0085	SIMFix ST	IP 67	110 g
	HPL50-1/2; 10D-SFCR		Angle plug	J01120B0026	SIMFix Pro	IP 68	230 g
	HFC 12D		Straight jack	J01121G0136	SIMFix Pro	IP 68	110 g
			Straight jack	J01121H0136	SIMFix ST	IP 67	100 g
7/8"	RFA 7/8"-50; RFA 7/8"-50 AL;	F	Straight plug	J01120A0104	SIMFix CA Pro	IP 68	160 g
	LCF 78-50A; Eupen 5227;		Straight plug	J01120B0104	SIMFix CA ST	IP 67	150 g
	Eupen 5228X; Eupen 5228A;		Straight jack	J01121A0180	SIMFix CA Pro	IP 68	155 g
	LDF5-50A; RFX 7/8"-50;		Straight jack*	J01121B0180	SIMFix CA ST	IP 67	145 g
	AL5-50; HPL50-7/8 AL;						
	HPL50-7/8; 20D-SFCR						
	HFC 22D; AVA5-50						
1 1/4"	RFA 1 1/4"-50; LCF 114-50A	F	Straight plug	J01120G0087	SIMFix Pro	IP 68	540 g
	Eupen 5328A; Eupen 5327		Straight plug	J01120H0087	SIMFix ST	IP 67	530 g
	LDF6-50A; RFX 1 1/4"-50		Straight jack	J01121G0138	SIMFix Pro	IP 68	530 g
	HPL50-1 1/4; FlexLine 1 1/4"R		Straight jack	J01121H0138	SIMFix ST	IP 67	520 g
1 5/8"	RFA 1 5/8"-50; LCF 158-50A	F	Straight plug	J01120G0088	SIMFix Pro	IP 68	700 g
	Eupen 5438; LDF7-50A		Straight plug	J01120H0088	SIMFix ST	IP 67	675 g
	HPL50- 1 5/8"; HFC 42D		Straight jack	J01121G0139	SIMFix Pro	IP 68	690 g
	AVA7-50; FlexLine 1 5/8"R		Straight jack	J01121H0139	SIMFix ST	IP 67	665 g
2 1/4"	RFA 2 1/4"-50	F	Straight jack	J01121A0174	SimFix Pro	IP68	940g

Packaging:
Individually packed in PE foil, together with assembly instruction

B: Braided Cable
F: Feeder Cable (with annular corrugated outer conductor)
J: Jumper Cable (with spiral corrugated outer conductor)
X: Radiating Cable

* With integrated earthing wire.

N Connectors Overview

Ø	Cable	Cable Type	Design	Order no.	Type	IP Class	Weight
~10 mm	RG213; RG214	B	Straight plug	J01020I1070	Solder/Clamp	IP 67	57 g
			Straight jack	J01021H1076	Solder/Clamp	IP 67	53 g
	G37 (2.7/7.25); G42 (2.7/7.1)	B	Straight plug	J01020A0149	Solder/Clamp	IP 67	55 g
			Straight plug	J01020A0156	Clamp/Clamp	IP 67	55 g
1/4"	CF 14-50J; Eupen 5062;	F	Straight plug	J01020A0028	Standard	IP 67	70 g
	HPL50-1/4		Straight jack	J01021A0043	Standard	IP 67	70 g
1/4"	FSJ1-50; RFF 1/4"	F	Straight plug	J01020A0150	SIMFix	IP 67	60 g
	Cu2Y-50; SCF 14-50; Eupen 5042		Angle plug	J01020C0126	Short	IP 54	70 g
			Straight jack	J01021A0188	SIMFix	IP 67	65 g
3/8"	Eupen 5088; RF 3/8"-50;	F	Straight plug	J01020A0010	Standard	IP 67	90 g
	LCF 38-50J; HPL50-3/8		Straight jack	J01021A0041	Standard	IP 67	90 g
3/8"	LDF2-50	F	Straight plug	J01020A0031	Standard	IP 67	90 g
			Straight jack	J01021A0045	Standard	IP 67	90 g
3/8"	SCF 38-50J (HCF 3/8")	J	Angle plug	J01020D0124	Short	IP 54	75 g
1/2" Flex	RFF 1/2"-50; FSJ4-50B;	J	Straight plug	J01020A0105	SIMFix Pro	IP 68	170 g
	SCF 12-50J; Flexline 1/2"S		Straight plug	J01020A0098	SIMFix ST	IP 67	170 g
	Eupen 5092; HPL50-1/2-SF		Angle plug	J01020A0147	SIMFix Pro	IP 68	180 g
	HFSC 12D		Straight jack	J01021A0163	SIMFix Pro	IP 68	160 g
			Straight jack	J01021A0156	SIMFix ST	IP 67	160 g
1/2"	RFA 1/2"-50; LCF 12-50	F/X	Straight plug	J01020G0141	SIMFix Pro	IP 68	120 g
	Eupen 5128; LDF4-50A		Straight plug	J01020H0141	SIMFix ST	IP 67	110 g
	HPL50-1/2; 10D-SFCR; HFC 12D		Angle plug	J01020B0044	SIMFix Pro	IP 68	165 g
			Straight jack	J01021G0174	SIMFix Pro	IP 68	120 g
			Straight jack	J01021H0174	SIMFix ST	IP 67	110 g
7/8"	RFA 7/8"-50; RFA 7/8"-50 AL;	F	Straight plug	J01020A0153	SIMFix CA Pro	IP 68	145 g
	LCF 78-50A; Eupen 5227;		Straight plug	J01020B0153	SIMFix CA ST	IP 67	130 g
	Eupen 5228X; Eupen 5228A;		Straight jack	J01021A0201	SIMFix CA Pro	IP 68	140 g
	LDF5-50A; RFX 7/8"-50;		Straight jack	J01021B0201	SIMFix CA ST	IP 67	125 g
	AL5-50; HPL50-7/8 AL;						
	HPL50-7/8; 20D-SFCR						
	HFC 22D; AVA5-50						
1 1/4"	RFA 1 1/4"-50; LCF 114-50A	F	Straight plug	J01020G0143	SIMFix Pro	IP 68	710 g
	Eupen 5328A; Eupen 5327		Straight plug	J01020H0143	SIMFix ST	IP 67	660 g
	LDF6-50A; RFX 1 1/4"-50		Straight jack	J01021G0178	SIMFix Pro	IP 68	700 g
	HPL50-1 1/4; FlexLine 1 1/4"R		Straight jack	J01021H0178	SIMFix ST	IP 67	650 g
1 5/8"	RFA 1 5/8"-50; LCF 158-50A	F	Straight plug	J01020G0144	SIMFix Pro	IP 68	800 g
	Eupen 5438; LDF7-50A; HFC 42D		Straight jack	J01021G0179	SIMFix Pro	IP 68	790 g
	HPL50- 1 5/8"; AVA7-50;						
	FlexLine 1 5/8" R						

Packaging:
Individually packed in PE foil, together with assembly instruction

B: Braided Cable
F: Feeder Cable (with annular corrugated outer conductor)
J: Jumper Cable (with spiral corrugated outer conductor)
X: Radiating Cable

2 EMP Protection

Surge Suppressors

To protect against EMP caused by lightning strikes in the direct vicinity of base stations, Telegärtner has developed a range of surge suppressors wit 7/16- and N-Series interfaces.

There are two different functional designs:

- Quarter Wavelength Shorting Stub – with or without DC pass
- Surge suppressors with Gas Discharge Tube

λ/4 Shorting Stub Protectors

These surge suppressors act like narrow bandpass filters. Only a narrow bandwidth is allowed to pass; other frequencies are shorted and discharged to ground. The design of these surge suppressors involves a direct and solid short-circuit between the centre and outer conductor of the coaxial device.

This short-circuit path, in the form of a coaxial line and of a precisely defined length, is designed to have an electrical length equivalent to one quarter wavelength (λ/4) of the signal frequency to be transmitted. As an alternating voltage of the correct frequency passes along the quarter-wavelength shorting stub it experiences a 90° phase angle rotation, is then reflected totally at the short (180° phase angle rotation) and finally travels back along the quarter wavelength stub (= a futher phase angle rotation of 90°). This represents a total phase angle rotation of 360°. The reflected signal and the incident signal are in phase and the operating signal does not see the short.

It is, therefore, not affected by it. However, if an alternating voltage of a different frequency is present, then these special factors are not given and the energy is short-circuited (= discharged to ground).

λ/4 Shorting Stubs

λ/4 Shorting Stub Protectors with DC Pass

DC pass types are λ/4 stub protectors, which – as is the case with gas capsule protection devices – allow a DC current to pass in order to feed, for example, mast top antennas (MTAs).

The advantage of these new λ/4 stub protectors (as opposed to the gas discharge types) is that they retain the excellent transmission and PIM characteristics of the λ/4 shorting stub protectors.

Applications

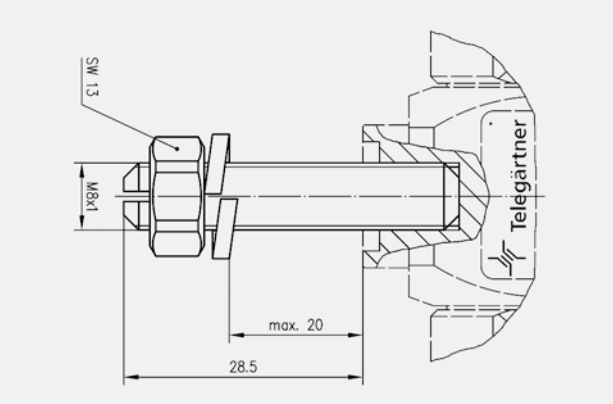
λ/4 stub protectors are used particularly in transmission paths between antenna and base station, as well as where transmit and receive signals use a common cable, involving high power signal levels.

In principle, the use of λ/4 shorting stubs in the receive path can also be recommended. In the event of a pre-amplifier being used at the Rx end, then it would be necessary to use the new special λ/4 shorting stub protector with DC pass.

Advantages

- Very high discharge currents are possible
- Very good transmission and intermodulation characteristics
- Complete discharge of the excess voltage
- Automatically operational again after the surcharge subsides, no special precautions necessary to protect the DC supply current
- Matching of the frequency range up to a range of over 10 GHz possible
- Maintenance free and waterproof
- Since only the desired frequency range is allowed to pass, there is an additional, useful filter effect (excluding odd multiples of the quarter wavelength frequency)

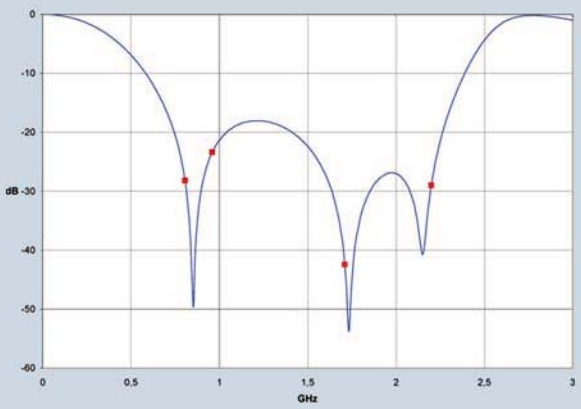
Accessory: Fixing Kit



Fixing Kit Order Number: H06000A0024

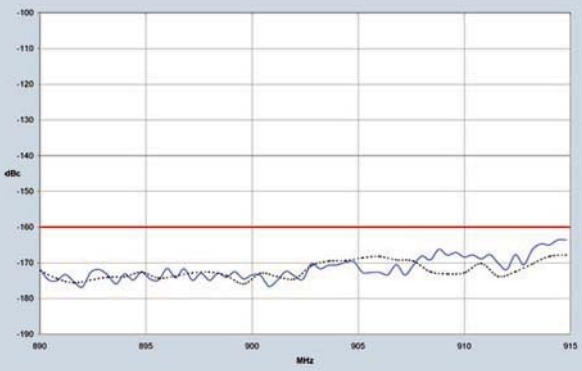
Technical Data

Return Loss Tri-Band-Type (J01125A0024)



1: 810 MHz = -27,3 dB
2: 960 MHz = -25,6 dB
3: 1710 MHz = -35,4 dB
4: 2200 MHz = -33,9 dB

Intermodulation Performance (PIM 3rd. order) < -160 dBc



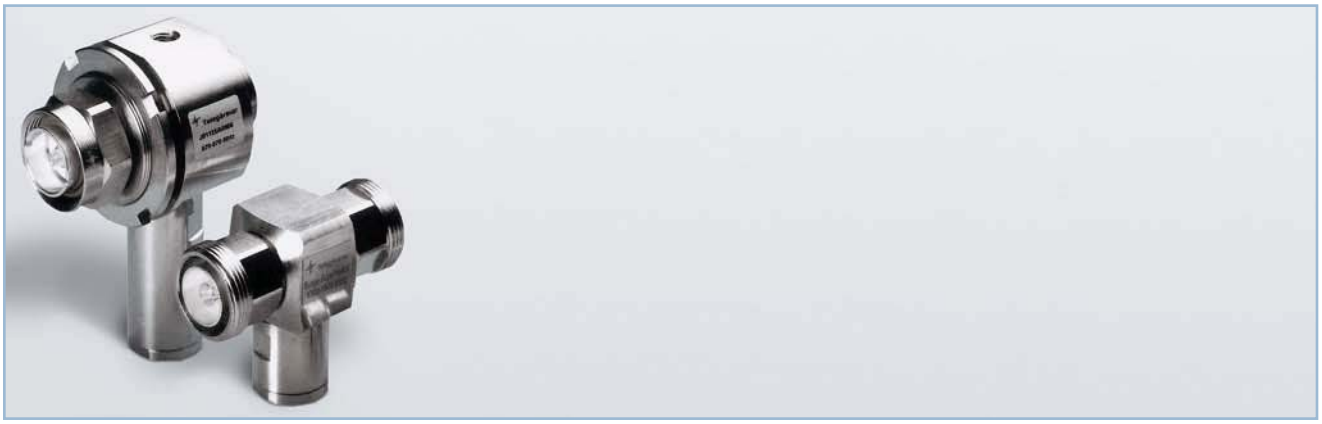
λ/4 Shorting Stubs

Technical Data

Mechanical Characteristics	
Materials	
Spring contact	CuBe2
Other metal parts	CuZn39Pb3
Insulators	PTFE
Gaskets	Silicon
Finish	
Spring contact	Cu2Ag5
Other metal parts	CuSnZn3
Coupling torque Series N	4-6 Nm
Coupling torque Series 7-16	25-35 Nm
Durability (mating cycles)	> 500

Thermal and Climatic Characteristics	
Category to DIN IEC 68 Part 1	
Series N	40/155/21
Series 7-16	55/155/56
Protection level to DIN 40050/IEC 529	IP 67

Electrical Characteristics	
VSWR	< 1.15
Insertion loss	< 0.1 dB
Intermodulation	
Intermodulation product 3rd Order (typical) at 800-1000 MHz	-160 dBc
2 unmodulated test-signals at 43dBm (20W) at 1600-2000 MHz	-155 dBc
Max. Power at 2200 MHz	500 W
Max. Discharge Current	
Standard Types of quarterwave shorting stubs	100 kA (8/50 µs test impulses)
Types with DC pass	30 kA (8/50 µs test impulses, multiple)
Maximum Working Voltage for DC pass types	85 V



λ/4 Shorting Stub Types

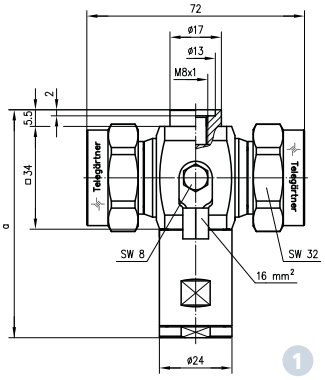
Type	Frequency range (MHz)						Fig
	380-430	806-960 1710-2200	870-970	1700-1900	1920-2170	2250-2500	
7-16 m-m		J01125A0022 (10					1
7-16 f-f	J01125A0040 (9	J01125A0023 (10	J01125A0000 (1	J01125A0002 (4	J01125A0032 (4		2
7-16 m-f	J01125A0039 (9	J01125A0024 (10	J01125C0001 (1		J01125B0021 (4	J01125B0016 (7	3
7-16 m-f (bulkhead)		J01125B0031 (12	J01125B0006 (3	J01125B0015 (5			4
7-16 m-m DC pass		J01125A0028					-
7-16 m-m DC-Pass		J01125A0029					-
7-16 m-f DC pass		J01125B0030					5
N f-f			EW950200-00 (8	EW950200-30 (4		J01028A0019 (7	6
N m-f			J01028A0008 (1	J01028A0009 (4		J01028A0022 (7	7
N f-f bulkhead	J01028A0053 (9						8

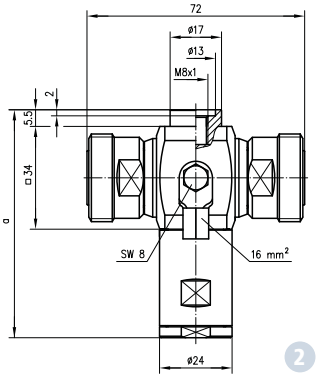
Dimensions (compare to drawings):

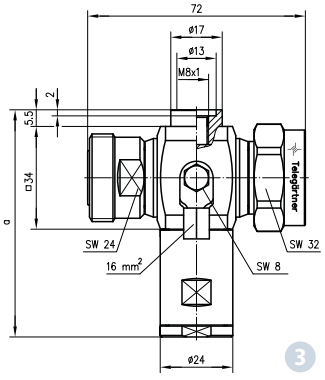
1) Dimension a=97 mm
2) Dimension a=98 mm
3) Dimension a=102 mm
4) Dimension a=64 mm
5) Dimension a=69 mm
6) Dimension a=65 mm
7) Dimension a=59 mm
8) Dimension a=92 mm
9) Dimension a=98 mm
10) Dimension a=71-76 mm
11) Dimension a=58.5 mm
12) Dimension a=79 mm

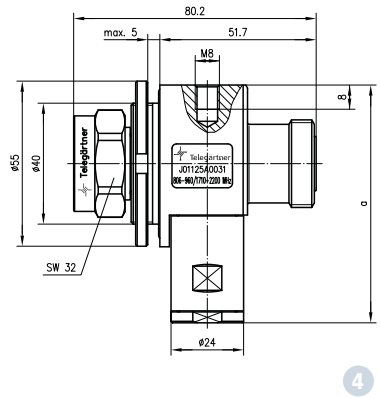
λ/4 Shorting Stubs

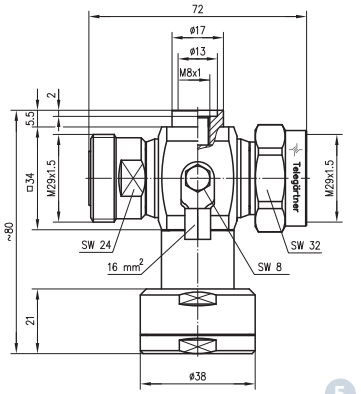
λ/4 Shorting Stub Types

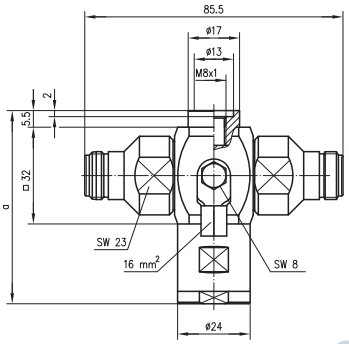


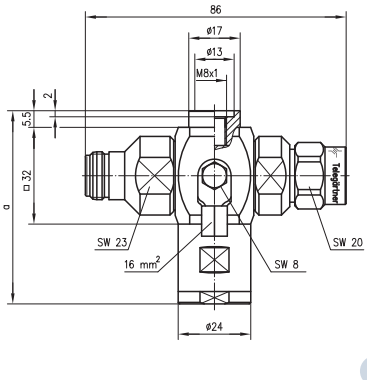


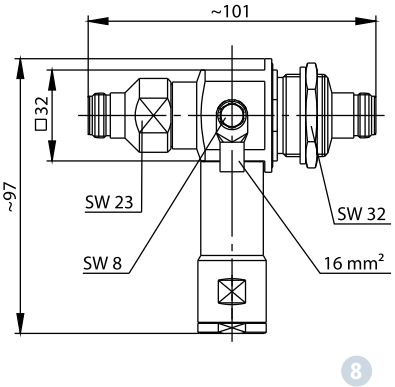












Surge Suppressors with Gas Discharge Tube (GDT)

Voltage Surge Protection with Gas Discharge Tube

The method of operation of this device can be likened in principle to an electrical switch which, when a certain voltage (d.c. sparkover voltage) is reached, switches the inner conductor to ground.

The design of this device consists of a Gas Discharge Tube installed directly between the inner and outer conductors of a coaxial line. When a higher voltage than the impulse sparkover voltage (=overvoltage) appears on the line, the Gas Discharge Tube will fire and, depending on the prevalent energy, a glow discharge of between 75-90 V (current in milliampere range) or ionisation with an arc voltage of 10-20 V (currents ranging from amps to kiloamps) takes place. When the energy subsides (= is converted to heat), the discharge extinguishes itself automatically. After a cooling-down period of 30 secs., the Gas Discharge Tube is fully operational again. After several very high discharge currents occurring within a few seconds of each other, the functionality of the device may be impaired. It is recommended, therefore, that the gas capsules are replaced at certain intervals.

Among the GDT Surge Surpressors there are 2 product lines available:

G27-Series

For frequencies up to **2.7 GHz** and a maximum power of 300 W. The maximum discharge current is 40 KA (8/20 µs). The Gas Discharge Tube can be replaced.

G6-Series

For frequencies up to **6 GHz** and a maximum power of 25 W. The maximum discharge current is 10 kA (8/20 µs).

Advantages

- Broad-band applications
- Transmission of DC voltages possible, e.g. remote feeding of antenna amplifiers over the coaxial cable
- Maximum impulse Discharge current up to 40 KA
- Different variants available from 75 to 1400 V
- Installation in a waterproof unit

Applications

The main usage of the surge suppressor with gas discharge tube is between the antenna and the base station. For high power signal transmission lines, λ/4 surge arrestors are recommended, as the non-linear characteristics of the gas cartridge can produce intermodulation products.

Selection of suitable lightning protector with gas discharge tube

Generally speaking, the spark-over voltage of the discharge tube should be kept as low as possible. However, in order to avoid an unintentional ignition of the tube, the spark-over voltage should be at least twice the peak voltage occuring under normal working conditions.

Example:
P = 100 W
Z = 50 Ω (with VSWR 1:1)
Peak voltage = $U_{max} = \sqrt{PxZ}$ = 71 V
Recommended spark-over voltage = 2 × U_{max} = 142 V
Most suitable Lightning Protector is 145 V Type (J01028A0036)

Technical Data (G27-Series)

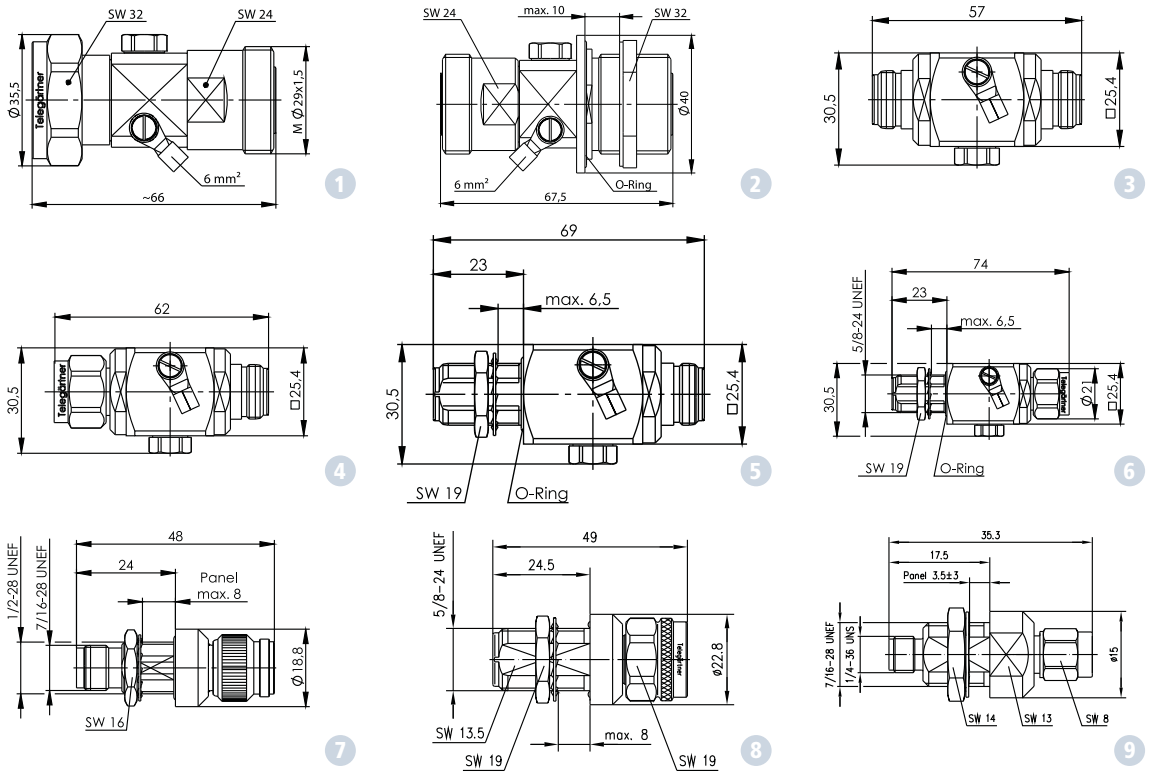
Mechanical Characteristics	
Materials	
Spring contact	CuBe2
Other metal parts	CuZn39Pb3
Insulators	PTFE
Gaskets	Silicon
Finish	
Spring contact	Cu2Ag5
Other metal parts	CuSnZn3
Coupling torque Series N	4-6 Nm
Coupling torque Series 7-16	25-35 Nm
Durability (mating cycles)	> 500

Thermal and Climatic Characteristics connectors		
	Series N	**Series 7-16**
Category to DIN IEC 68 Part 1	40/155/21	55/155/56
Protection level to DIN 60529	IP 68	IP 68

Electrical Characteristics		
	Series N	**Series 7-16**
Max. frequency	2.7 GHz	2.7 GHz
VSWR	< 1.2 (2.7 GHz)	<1.2 (2.7 GHz)
Insertion loss	< 0.2 dB	< 0.1 dB
Impulse Discharge Current	2500 x 10 A (10/1000 µs)	
	1000 x 500 A (10/1000 µs)	
	5 x 20000 A (8/20 µs)	
	1 x 40000 A (8/20 µs)	

Surge Suppressors with Gas Discharge Tube (GDT)

Gas Discharge Tube Types



G27-Series

Type	Nominal DC spark-over voltage								Fig.
	75 V	90 V	145 V	230 V	470 V	600 V	800V	1000 V	
7-16 m-f		J01125A0037		J01125A0035			J01125A0045	J01125A0046	1
7-16 f-f bulkhead		J01125A0038		J01125A0036					2
N f-f	J01028A0031	J01028A0033	J01028A0035	J01028A0037	J01028A0039	J01028A0040	J01028A0042	J01028A0043	3
N m-f	J01028A0032	J01028A0034	J01028A0036	J01028A0038		J01028A0041			4
N f-f bulkhead		J01028A0044 J01028A0055*		J01028A0045					5
N m-f bulkhead				J01028A0046					6

* with mounting kit H06000A0024 (see page 31)

G6-Series

Type	BNC m-f	TNC m-f	R-TNC m-f	N m-f	N f-f	SMA m-f	R-SMA m-f
Order No.	J01007A0002	J01017A0004	J01017R0000	J01028A0047	J01028A0048	J01158A0001	J01158R0001
Fig.	-	7	7	8	-	9	9

3

Jumper Cables

The jumper cables are fitted at both ends with our 7-16 connectors and/or N connectors by our partner company **Quadrant Connections Ltd**. The cable is a highly flexible 1/2" corrugated type. The very low intermodulation products of the jumper cables are tested on special intermodulation test systems. They are tested up to a frequency of 2.7 GHz. The jumper cables are waterproof and sealed to allow external use. Intermodulation test results for the jumper cables are also available. (Order no. U00100A0000)

Protection Classification IP 68

The 7-16 connectors also incorporate an additional seal between centre contact and connector housing in the mating-face (barrier-seal). A 360° inductive solder of the outer conductor – apart from contributing to excellent PIM and Return Loss Characteristics – also provides additional protection against ingress of moisture in the event of the cable sheath being damaged.

- Very low intermodulation products (IMP3)
- Hexagonal coupling nuts for correct torque and high-contact pressure
- Waterproof for external use
- Excellent return loss and attenuation
- Fully soldered inner- and outer conductor

3/8" Jumper cables and other cable size available on request

Technical Data (7-16 types)

Mechanical Characteristics	
Materials	
Spring contact	CuBe2
Other metal parts	CuZn39Pb3
Insulator	PTFE
Gaskets	Silicon
Finish	
Spring contact	Cu2Ag5
Outer surface	Cu2Ag5
Coupling torque	25-35 Nm

Cables

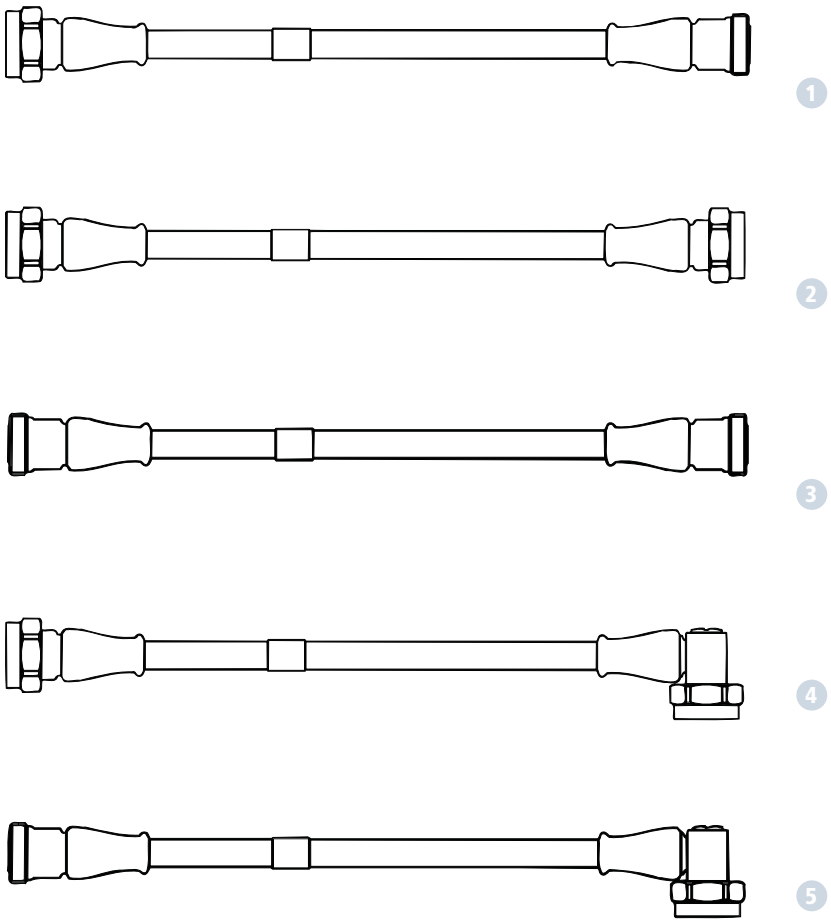
- 1/2" highly flexible spiral corrugated cable
- Colour: black (standard) or grey RAL7047 (option)
- Bend radius min. 30 mm

Thermal and Climatic Characteristics	
Temperature range	-40 °C – +60 °C
Relative humidity	10 % – 100 %
Corrosion and UV resistant Protection to DIN 40050/IEC 529	IP 68

Electrical Characteristics	
Return Loss (VSWR)	
up to 1000 MHz	-38 dB (1.02:1) typical
	-30 dB (1.06:1) min.
up to 2200 MHz	-32 dB (1.05:1) typical
	-28 dB (1.08:1) min.
Attenuation (dB)	
up to 1000 MHz	0,11 dB/m
up to 2200 MHz	0.17 dB/m (+0.1 dB for connectors)
Power handling	
up to 1000 MH	500 W min.
up to 2200 MHz	300 W min.
Impedance	50 Ω (±2 Ω)
Contact potential	no dissimilar metal surfaces
Voltage rating	1100 V
Velocity of propagation	78.5 % min.
Intermodulation / Intermodulation products 3rd Order (typical) 2 unmodulated test signals each at 43dBm (20 W)	
to 1000 MHz	-165 dBc (-122 dBm) typ.
	-157 dBc (-114 dBm) min.
to 2200 MHz	-165 dBc (-122 dBm) typ.
	-157 dBc (-114 dBm) min.

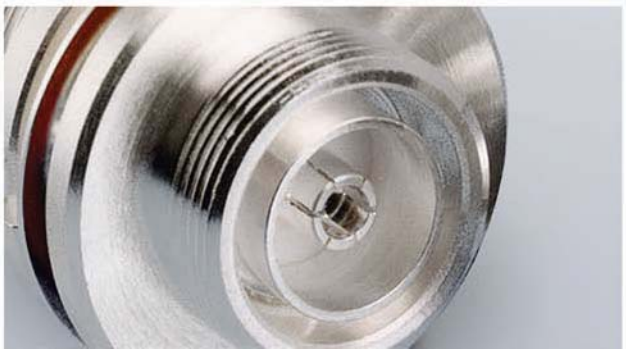
Jumper Cables

1/2“ highly flexible corrugated cable



Cable Type	Length	Order no.	Weight	Fig.
Plug - Jack (7-16)	0.5 m	L00010D0550	425 g	1
	1.0 m	L00010D0551	550 g	1
	1.5 m	L00011D0182	675 g	1
	2.0 m	L00011D0183	800 g	1
	2.5 m	L00012D0061	925 g	1
	3.0 m	L00012D0062	1050 g	1
	4.0 m	L00013D0056	1300 g	1
	5.0 m	L00013D0057	1550 g	1
Plug - Plug (7-16)	0.5 m	L00010D0552	425 g	2
	1.0 m	L00010D0553	550 g	2
	1.5 m	L00011D0184	675 g	2
	2.0 m	L00011D0185	800 g	2
	2.5 m	L00012D0063	925 g	2
	3.0 m	L00012D0064	1050 g	2
	4.0 m	L00013D0058	1300 g	2
	5.0 m	L00013D0059	1550 g	2
Jack - Jack (7-16)	0.5 m	L00010D0559	425 g	3
	1.0 m	L00010D0600	550 g	3
	1.5 m	L00011D0198	675 g	3
	2.0 m	L00011D0199	800 g	3

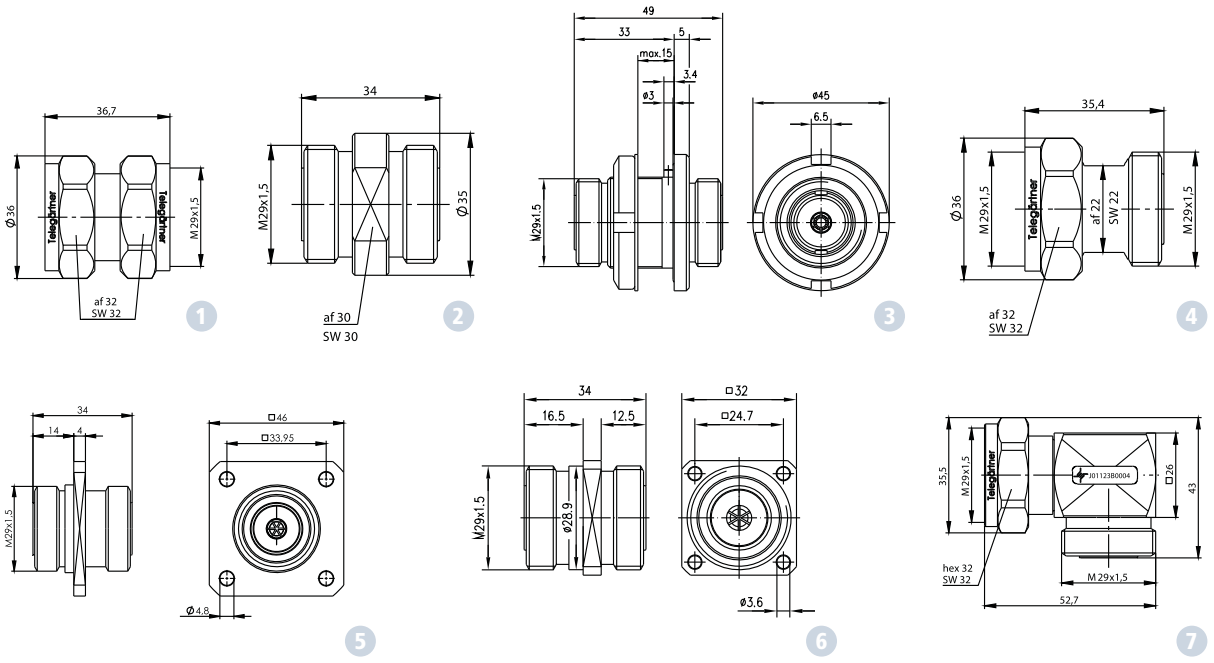
Cable Type	Length	Order no.	Weight	Fig.
Jack - Jack (7-16)	2.5 m	L00012D0073	925 g	3
	3.0 m	L00012D0074	1050 g	3
	4.0 m	L00013D0073	1300 g	3
	5.0 m	L00013D0074	1550 g	3
Plug - Angle plug (7-16)	0.5 m	L00010D0565	425 g	4
	1.0 m	L00010D0566	550 g	4
	1.5 m	L00011D0186	675 g	4
	2.0 m	L00011D0187	800 g	4
	2.5 m	L00012D0065	925 g	4
	3.0 m	L00012D0066	1050 g	4
	4.0 m	L00013D0061	1300 g	4
	5.0 m	L00013D0062	1550 g	4
Jack - Angle plug (7-16)	0.5 m	L00010D0567	425 g	5
	1.0 m	L00010D0568	550 g	5
	1.5 m	L00011D0188	675 g	5
	2.0 m	L00011D0189	800 g	5
	2.5 m	L00012D0067	925 g	5
	3.0 m	L00012D0068	1050 g	5
	4.0 m	L00013D0063	1300 g	5
	5.0 m	L00013D0064	1550 g	5


4 Adaptors and Dust Caps, 7-16 and N

The adaptors in the 7-16 and N series are waterproof and suitable for external use. The connector plug is fitted with a hexagonal nut and should be connected utilising the recommended torque (7-16: 25-35 Nm; N: 4-6 Nm). This ensures a lasting connection with low return loss and excellent intermodulation characteristics.

Adaptors 7-16

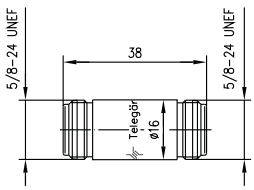


Type	Type	Order no.	Panel Piercing	Fig.
7-16 adaptor	plug-plug	J01123B0000		1
7-16 adaptor IEC Type 169-4 IEC-6	jack-jack	J01123B0001		2
7-16 adaptor IEC Type 169-4 IEC-8	jack-jack,bulkhead	J01123A0003	Z61	3
7-16 adaptor	plug-jack	J01123B0006		4
7-16 adaptor with flange IEC Type 169-4 IEC-7	jack-jack, flange	J01123A0002	Z60	5
7-16 adaptor with flange	jack-jack	J01123A0007	Z12	6
7-16 angle adaptor	plug-jack	J01123B0004		7

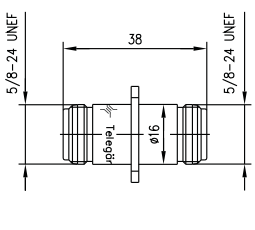
Packaging: Individually packed in PE foil, together with assembly instruction. Mating-face of 7-16 jacks are protected with a PE-cap

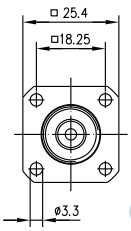
Adaptors and Dust Caps, 7-16 and N

Adaptors N



1





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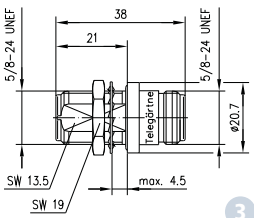

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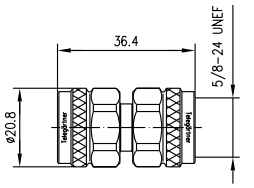
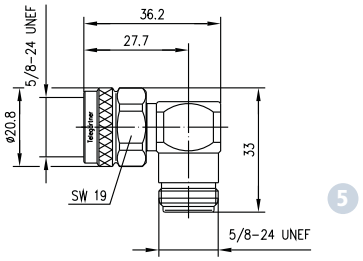


4

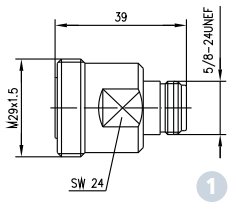


5

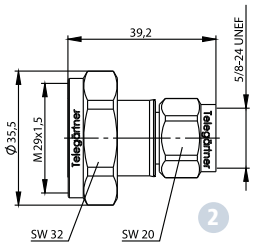
Type	Type	Order no.	Panel Piercing	Fig.
N adaptor	jack-jack	J01024A0004		1
N adaptor with flange	jack-jack, flange	J01024A0005	Z08	2
N adaptor	jack-jack, bulkhead	J01024A0006	Z10	3
N adaptor	plug-plug	J01024J1094		4
N angle adaptor	plug-jack	J01024J1096		5

Packaging: Individually packed in PE foil, together with assembly instruction. Mating-face of 7-16 jacks are protected with a PE-cap

Inter Series Adaptors 7-16 – N



1



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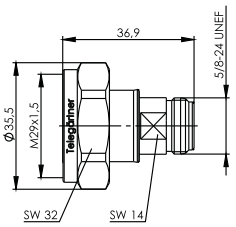

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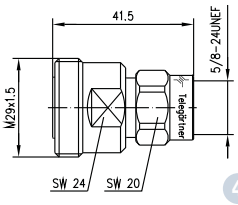
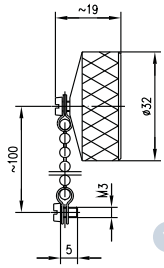


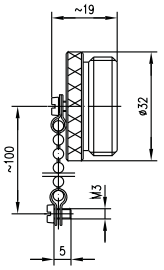
4

Type	Order no.	Fig.
7-16 jack-N jack	J01122A0008	1
7-16 plug-N plug	J01122C0009	2
7-16 plug-N jack	J01122B0010	3
7-16 jack-N plug	J01122A0011	4

Dust Caps



1



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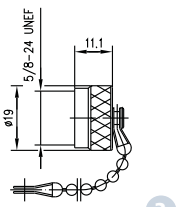

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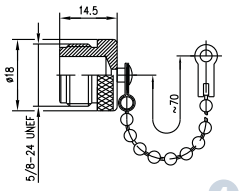


4

Type	Order no.	Fig.
7-16 dust cap for jacks	H00070A0000	1
7-16 dust cap for plugs	H00070A0001	2
N dust cap for jacks	H00010A1122	3
N dust cap for plugs	H00010A0000	4

5

Tools and Accessories

Stripping Tools (1/2“ and 7/8“)

The stripping tools are used for preparing cables for terminating with and SIM*Fix*® Pro and SIM*Fix*® ST connectors.

Manual stripping tools:
- Precise cable outer jacket removal
- Precise cutting of outer conductor, dielectric and inner conductor
- Edge forming of the outer conductor
- Removal of burrs on the inner conductor
- Adjusting screw for accomodating cable tolerances
- The tool is supplied with a hardened blade (including spare blade) for prolonged use.

Rotating stripping tool for use with an electric power drill
- Exact stripping of cable jacket, outer conductor, dielectric and inner conductor.

Rotation stripping tool Manual stripping tool

Termination Tool set for SIM*Fix*® ST/Pro 1 1/4“ + 1 5/8“ Connectors

The tool kit includes tools for preparing the cable and for terminating all SIM*Fix*® Pro 1 1/4“ + 1 5/8“ connectors made by Telegärtner. Furthermore there are 2 empty pockets for adding on 1/2“ + 7/8“ stripping tools.

- Sheath Cutter for 1 1/4“ and 1 5/8“ corrugated cables
- Sawing Guides 1 1/4“, 1 5/8“
- Deburring Tools 1 1/4“, 1 5/8“
- Cable knife
- Brush for removing metal shavings
- Spanners for SIM*Fix*® Pro/ST 1/2“, 7/8“, 1 1/4“ and 1 5/8“

Tools and Accessories

Stripping Tools and Spare Blades for Stripping Tools

For Cable	Stripping Tools	Connector Type	Series	Order no.
1/2"(flex)	Manual stripping tool	SIMFix ST	7-16; N	N00091A0004
	Manual stripping tool	SIMFix Pro*	7-16; N	N00091A0013
1/2"	Manual stripping tool	SIMFix Pro* + ST	7-16; N	N00091A0015
	Rotating stripping tool for use with a electric power drill	SIMFix Pro* + ST	7-16; N	N00091B0018
7/8"	Manual stripping tool	SIMFix Pro + ST	7-16; N	N00091A0022
	Rotating stripping tool for use with a electric power drill	SIMFix Pro + ST	7-16; N	N00091B0019
1 1/4" + 1 5/8"	Tool set	SIMFix Pro + ST	7-16; N	R00200A0011
1/2"(flex)	Spare blades (2 round,1 small) for manual stripping tool			N00099A0001
1/2" + 7/8"	Spare blades (4 large,1 small) for manual stripping tool			N00099A0000
1/2"	Spare blade set rotating stripping tool			N00099A0006
7/8"	Spare blade set rotating stripping tool			N00099A0007

* suitable for straight and angled types

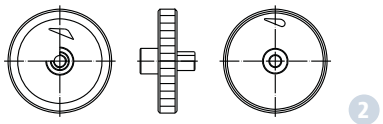
Spanner, Sheath Cutter, Open Ended Wrench

For terminating connectors on 1 1/4" and 1 5/8" corrugated cables (already included in tool kit R00200A0011).

Spanner and Sheath Cutter	Cable	Order no.
Spanner DIN 1810-B52-55 for SIMFix Pro/ST	1 1/4"	N00050A0001
Sheath Cutter for SIMFix Pro/ST	1 1/4"	N00080A0004
Spanner DIN 1810-B68-75 for SIMFix Pro/ST	1 5/8"	N00050A0003
Sheath Cutter for SIMFix Pro/ST	1 5/8"	N00080A0005
Sheath Cutter for SIMFix Pro	2 1/4"	N00080A0008
Double open end wrench AF19/22	1/2"	N00050A0011
Double open end wrench AF22/27	1/2"+7/8"	N00050A0012
Double open end wrench AF32/36	7/8", 1 1/4", 1 5/8"	N00050A0013

Sawing Guide, Flare and Deburring Tool

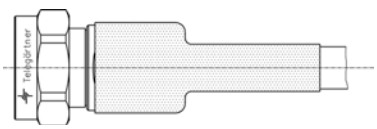
For terminating connectors on 1 1/4" and 1 5/8" corrugated cables (already included in tool kit R00200A0011).



Sawing Guide	Cable	Order no.	Fig.
Sawing Guide for SIMFix Pro/ST 1 1/4"	1 1/4"	N00091A0016	1
Sawing Guide for SIMFix Pro/ST 1 5/8"	1 5/8"	N00091A0017	1
Sawing Guide SIMFix 2 1/4"	2 1/4"	N00091A0021	1
Flare and deburring tool for SIMFix Pro/ST	1 1/4"+1 5/8"	N00099A0005	2

Adhesive Shrink-Sleeves

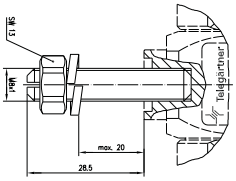
An adhesive shrink-sleeve is required for the short bodied connector to ensure waterproofing. (Not required for SIMFix Pro connectors). These are fitted over the junction between the connector and cable. By applying heat the adhesive process begins, so that the adhesive shrink-sleeve follows the exact contours of the connector and cable junction. This distributes the adhesive on the inside of the sleeve and, on cooling and hardening, provides a watertight joint.



Adhesive Shrink-Sleeves	Length	Cable	Order no.
Adhesive Shrink-Sleeves for short connectors	(l=70 mm)	1/4"	B00101A0008
Adhesive Shrink-Sleeves for short connectors	(l=70 mm)	3/8" + 1/2"	B00102A0005

Fixing Kit for λ /4 Shorting Stubs

For mounting λ/4 Shorting Stubs on (earthing) bus bars. Contents: Bolt, hex. locking nut, lock washer



Fixing kit	Order no.
Mounting kit for λ/4 Shorting Stubs	H06000A0024

IP Classification of Degree of Protection

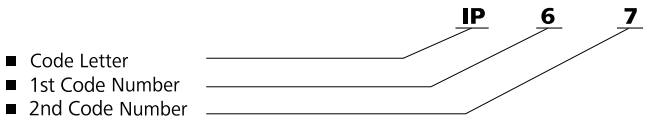
The degree of protection is classified according to IEC 60529. The coding system used is the IP Code (International Protection). The coding denotes the level of protection against the ingress of solid bodies (first code number) and the ingress of water (second code number).

Protection against solid foreign bodies*	
1st Code Number	**Description**
0	No particular protection
1	Protection against ingress of solid foreign bodies with a diameter of 50 mm or more
2	Protection against ingress of solid foreign bodies with a diameter of 12.5 mm or more
3	Protection against ingress of solid foreign bodies with a diameter of 2.5 mm or more
4	Protection against ingress of solid foreign bodies with a diameter of 1.0 mm or more
5	Dust protected
6	Dust-proof

Protection against water*	
2nd Code Number	**Description**
0	No particular protection
1	Protection against dripping water
2	Protection against vertically dripping water. There must be no harmful effect on materials tipped (in a container) up to 15° from it is normal position.
3	Protection against fine water spray
4	Protection against water spray
5	Protection against water jet
6	Protection against strong water jet
7	Protection against water, when the material is immersed in water
8	The material is suitable for continuous submersion in water. Must be agreed between customer and supplier.

* Definitions see IEC 60529

Example of Classification in Accordance with the IP Code

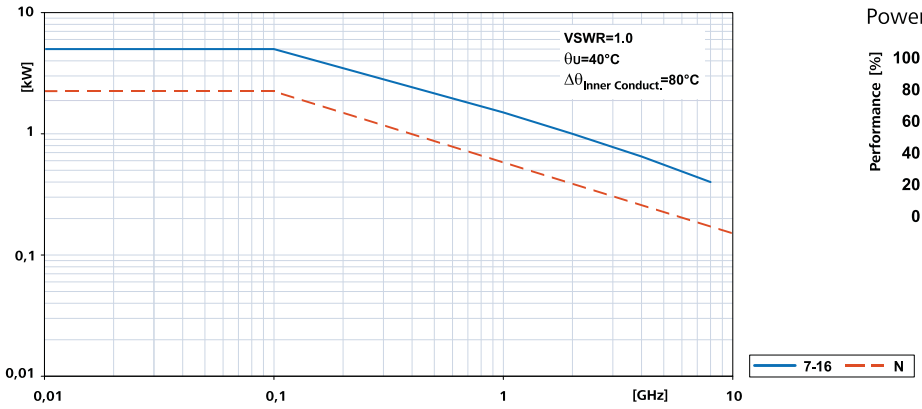


A housing with **IP** Classification

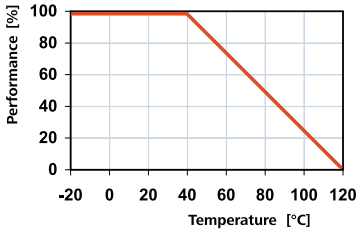
6 No ingress of dust

7 When subjected to submersion in water at a defined pressure and for a defined length of time, the ingress of water must be so restricted that no damage is caused. Submersion Bath: Water level above the enclosure: 0.15 m measured from the top of the enclosure, 1.0 m measured from the bottom of the enclosure. Duration of Test: 30 mins. TG Specification for Simfix Connectors: height of water level: 25 m: is equivalent to 2.5 bar; duration of test: 24 hrs.

Performance Diagrams



Power derating by temperature



Conversion Table: VSWR – Return Loss – Reflection Coefficient

The reflection behavior in coaxial connectors can be described as Return Loss, Reflection Coefficient or Voltage Standing Wave Ratio (VSWR). The relation between these three values is shown in the following table.
Use also our online calculator on our website www.telegaertner.com. Here you can compute online the relationship of these three sizes to each other.

Return Loss	Reflection Coefficient	VSWR	Return Loss	Reflection Coefficient	VSWR
10	0.316	1.923	30.5	0.030	1.060
10.5	0.298	1.848	31	0.028	1.056
11	0.282	1.780	31.5	0.027	1.054
11.5	0.266	1.726	32	0.025	1.051
12	0.252	1.671	32.5	0.024	1.048
12.5	0.237	1.618	33	0.022	1.045
13	0.224	1.578	33.5	0.021	1.043
13.5	0.211	1.538	34	0.020	1.040
14	0.199	1.497	34.5	0.019	1.038
14.5	0.188	1.462	35	0.018	1.036
15	0.178	1.430	35.5	0.017	1.034
15.5	0.I65	1.396	36	0.016	1.032
16	0.158	1.374	36.5	0.015	1.030
16.5	0.150	1.350	37	0.014	1.028
17	0.141	1.329	37.5	0.013	1.027
17.5	0.133	1.304	38	0.013	1.025
18	0.126	1.285	38.5	0.012	1.022
18.5	0.119	1.268	39	0.011	1.021
19	0.112	1.251	39.5	0.011	1.020
19.5	0.106	1.235	40	0.010	1.020
20	0.100	1.220	40.5	0.009	1.018
20.5	0.094	1.208	41	0.009	1.017
21	0.089	1.193	41.5	0.008	1.016
21.5	0.084	1.180	42	0.008	1.015
22	0.079	1.171	42.5	0.008	1.014
22.5	0.075	1.160	43	0.007	1.013
23	0.071	1.151	43.5	0.007	1.012
23.5	0.067	1.142	44	0.006	1.012
24	0.063	1.133	44.5	0.006	1.011
24.5	0.060	1.124	45	0.005	1.011
25	0.057	1.118	45.5	0.005	1.011
25.5	0.053	1.111	46	0.004	1.010
26	0.050	1.105	46.5	0.004	1.009
26.5	0.047	1.100	47	0.004	1.008
27	0.045	1.094	47.5	0.004	1.008
27.5	0.042	1.088	48	0.004	1.008
28	0.040	1.082	48.5	0.004	1.008
28.5	0.038	1.078	49	0.004	1.007
29	0.035	1.073	49.5	0.003	1.007
29.5	0.034	1.069	50	0.003	1.006
30	0.032	1.064			

* Errors and omissions excepted!

6.1 TOC Outdoor Connectors IP68

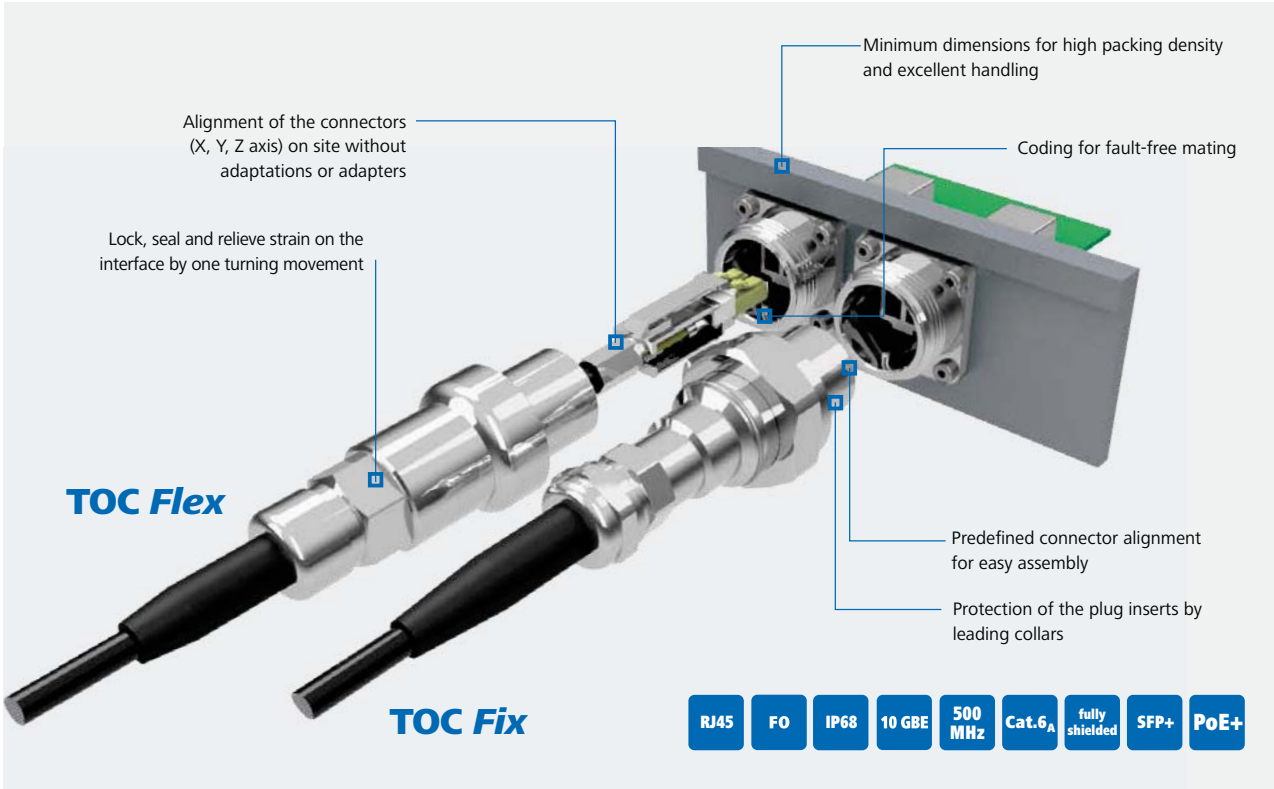
A new dimension in outdoor cabling

TOC stands for Telecommunications Outdoor Connectors and offers network professionals the reliability and flexibility they need for outdoor applications.

The handy, easy to install TOC connectors are used for data- and telecommunications in mobile radio, process-, utility- and traffic automation but also in harsh environment applications of machine and plant engineering.

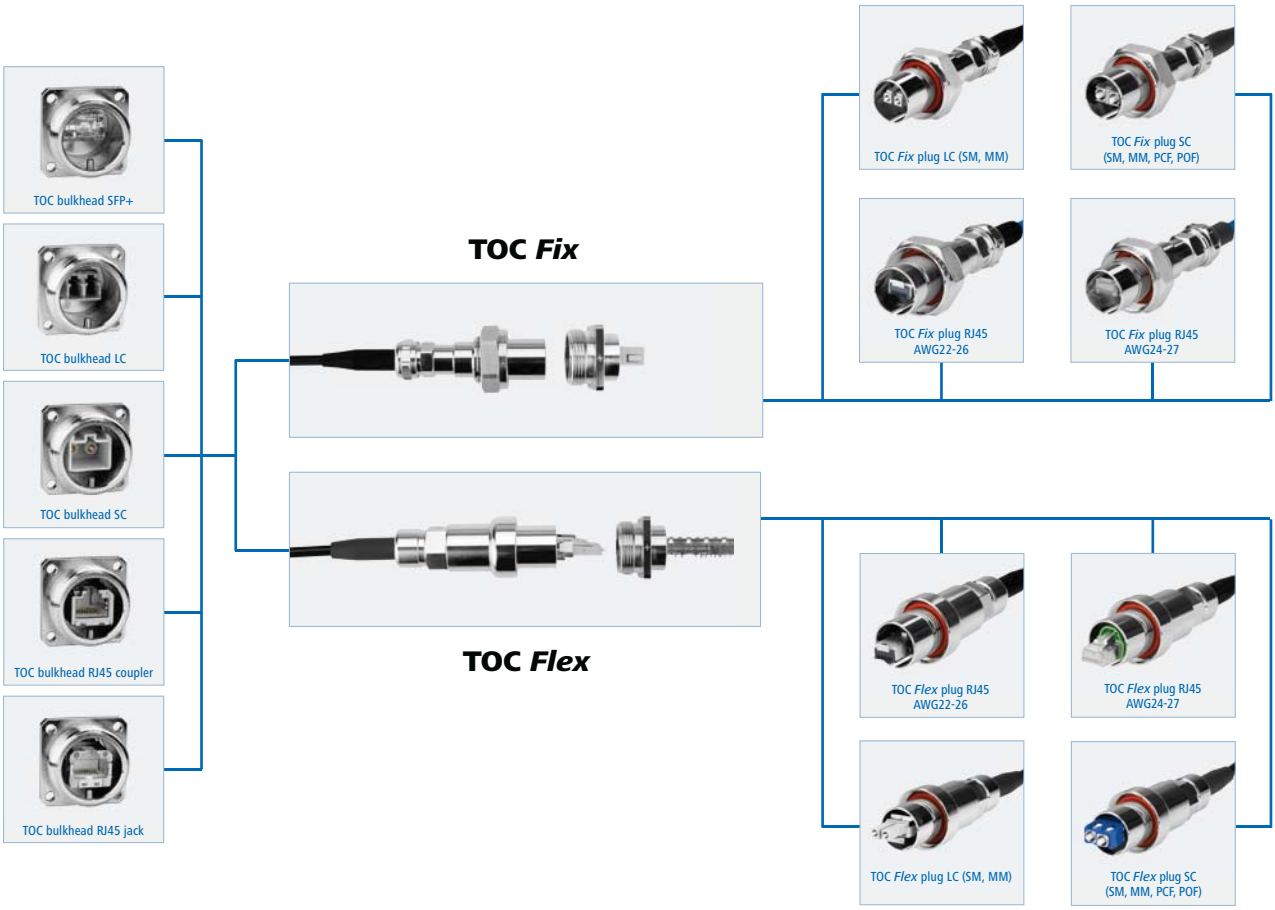
The TOC series is suitable for integration into any electronic SFP+ interface or as a stand-alone interface (IP68 outlets). All connectors of the TOC series are compliant with the specifications of the IP68 protection class and can be used in a temperature range from -40°C to 85°C due to their excellent material properties. In addition to the standard range, customized versions with other materials such as stainless steel or plastic are available on request.

The advantages of the TOC connectors at a glance

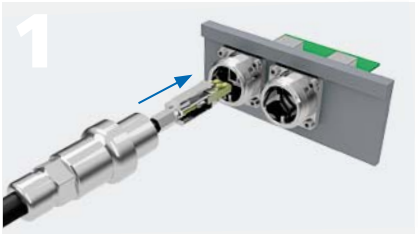


Minimum dimensions. Maximum possibillities.

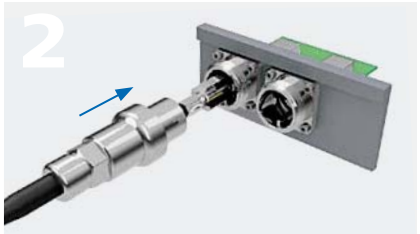
The TOC *Fix* with adjusted connector alignment for RJ45 or FO inserts, the TOC *Flex* for individual on-site adaptation of the connectors without adapters.
The special feature: Both housing versions can be equipped with different inserts such as RJ45 Cat.6_A, SC or LC. Customers benefit: more freedom of combination, more transmission reliablity and more flexibility in the network design.



TOC *Flex* assembly steps



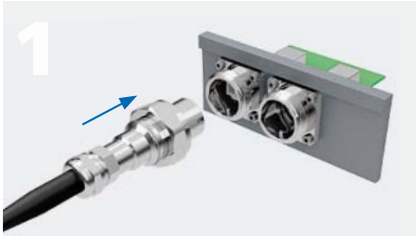
Plug the plug insert into the insert inside of the bulkhead regardless of the connector alignment



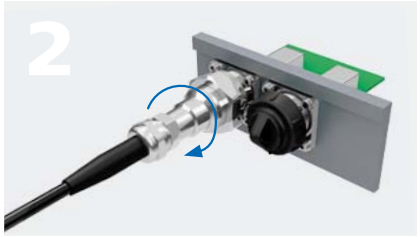
Push the plug housing over the plug insert

Screw the plug to the bulkhead – interface is locked, sealed and relieved of strain by one turning movement

TOC *Fix* assembly steps



Insert the plug into the bulkhead – connector alignment is predefined



Screw the plug to the bulkhead

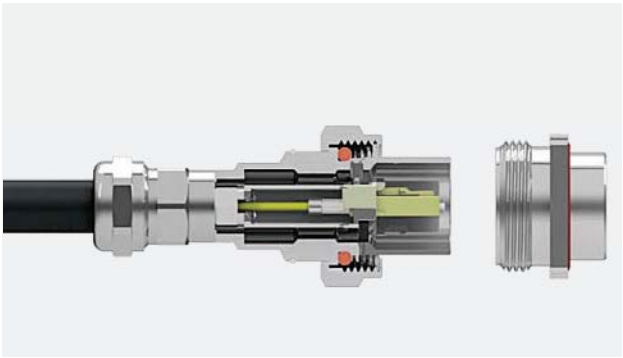
One series. Two types.

The TOC connectors are available both as RJ45 Cat.6$_A$ and as FO interface. They are available in two types:

TOC *Fix*

The TOC *Fix* features defined integration of the RJ45 Cat.6$_A$ or FO plug and bulkhead inserts.

The plug and bulkhead inserts have a fixed position in the plug housing and are adjusted to each other.

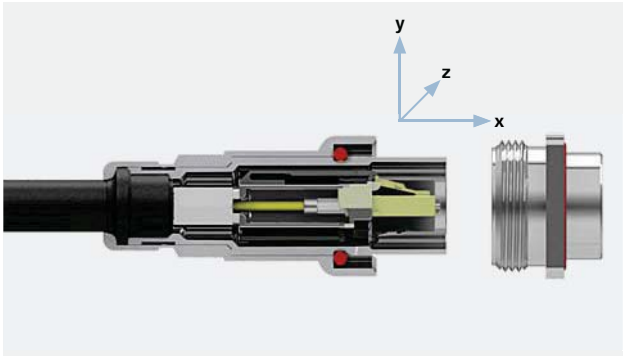


The plug insert and the plug housing are screwed to the bulkhead in one motion during installation.

TOC *Flex*

The TOC *Flex* has been developed especially for adaptation to different connector alignments between the plug and bulkhead inserts.

It is suitable for applications in which the plug axis can be optimally adjusted on site (x, y, z axis) by the choice of different bulkhead inserts (SFP Transceiver). The TOC *Flex* therefore especially simplifies the printed circuit board integration in electronic equipment.



The respective pluggable transceiver (RJ45, SC or LC) can be installed in and removed from the bulkhead from the front during installation. The plug insert and the plug housing are attached to the flange insert one after another whereby special attention has been paid to easy handling.

Technical data

RJ45 plug and bulkhead inserts	
RJ45	IEC 60603-7-51 (500 MHz)
Cat.6$_A$	ISO/IEC 11801:2010
IEEE 802.3an	10 Gigabit Ethernet
PoE+ 802.3at	adequate for PoE+
Mating cycles	< 750
RJ45 jack cu-conductor	AWG26/7-AWG22/7 / AWG26/1-AWG22/1
RJ45 jack core diameter	0.85 - 1.6 mm
RJ45 plug AWG24-27 cu-conductor	AWG27/7-AWG24/7 / AWG26/1-AWG24/1
RJ45 plug AWG24-27 core diameter	0.85 - 1.05 mm
RJ45 plug AWG22-26 cu-conductor	AWG26/7-AWG22/7 / AWG26/1-AWG22/1
RJ45 plug AWG22-26 core diameter	0.85 – 1.6 mm

FO plug and bulkhead inserts	
SC	IEC 61754-4
LC	IEC 61754-20
Mating cycles	< 500
Buffered optical fiber diameter	0,9 mm
Subcable diameter	up to 2,8 mm
Insertion loss	SM max. 0,5 dB, MM max. 0,4 dB, SM APC max. 0,5 dB
Return loss	min. 40 dB, min. 65 dB (APC)
Polish type	PC or APC 8°

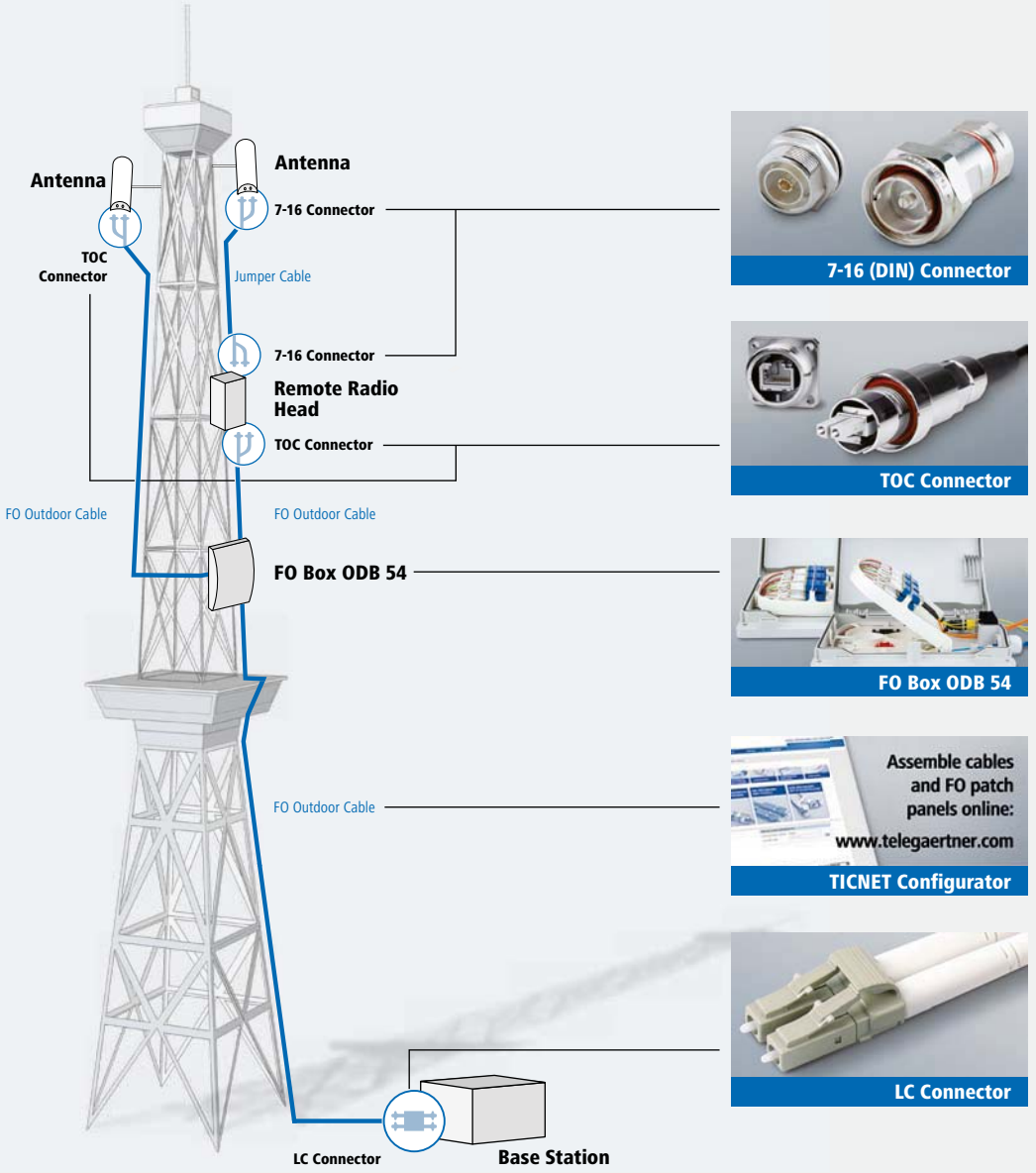
suitable for SM, MM, PCF or POF (SC) fibers

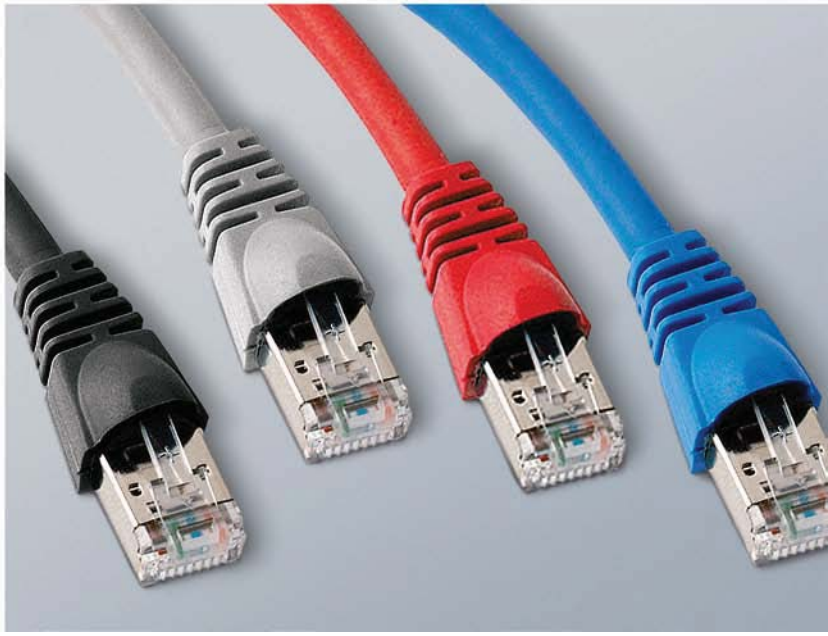
FO plug and bulkhead housings	
Housing material	nickel-plated brass, stainless steel or plastics; others on request
Locking mechanism	screw type, coupling torque 25-35 Nm
Mounting	round cutout 24 mm, 4 screws
Mating cycles	> 500
Operating temperature	-40 °C - +85 °C
Protection class	IP68 acc. to IEC 60529
Cable diameter	5 … 9 mm
RoHS	compliant

TOC connectors and applications

TOC connectors are used in outdoor applications for data- and telecommunications in mobile radio, process-, plant- and traffic automation but also in applications in machine and plant engineering.

Example of mobile communications cable installation





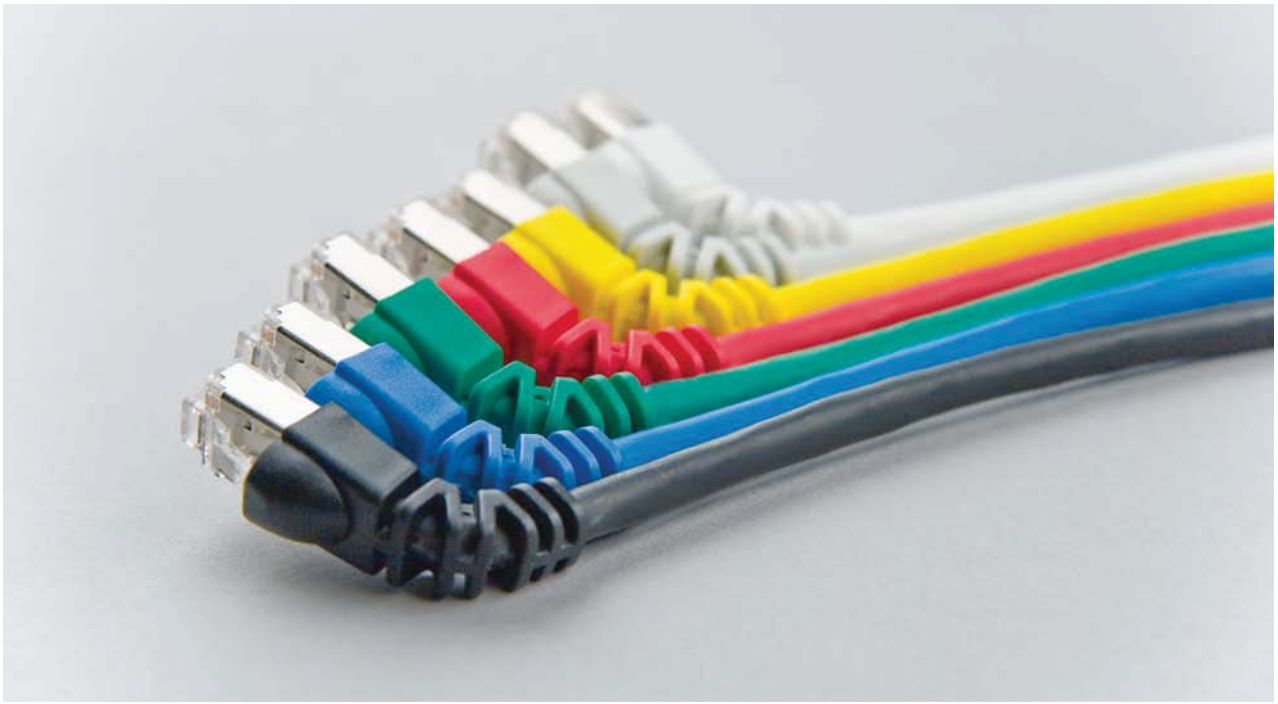
6.2 Patch Cords, Plugs and Installation Cables

Technical Data

Patch Cords shielded 500 MHz/Cat.6_A S/FTP LSZH

Mechanical Characteristics	
Cable Structure	Li02YSCH 4x2xAWG27/7 PiMF
Stranded wire	AWG27 (7/0.14 mm)
Insulation	PE, Ø 1.04 mm (±0.05 mm)
Outer jacket	5.7 mm (±0.02 mm)
Thermal and Climatic Characteristics	
Flame-retardant test	IEC 60332-1
UL	E344985
Operating temperature	-40°C...75°C

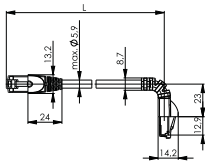
Electrical Characteristics	
Current carrying capacity at 50°C	1 A
PoE+ acc. to IEEE 802.3at	Adequate
Transmission Characteristics	
10 Gigabit Ethernet acc. to IEEE 802.3an	Adequate
Standard	
Connectors	IEC 60603-7-51



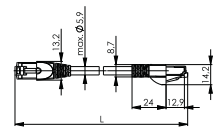
Patch Cords

Patch Cords MP8 FS 500 Cat.6$_A$ S/FTP 4x2xAWG27/7 LSZH

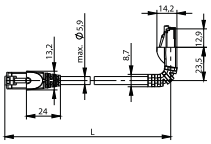
90°	Order-No.						
Length	grey	green	red	blue	yellow	black	white
0,5 m	L00000A0189	L00000A0193	L00000A0195	L00000A0197	L00000A0199	L00000A0201	L00000A0203
1,0 m	L00000A0192	L00000A0194	L00000A0196	L00000A0198	L00000A0200	L00000A0202	L00000A0204
2,0 m	L00001A0155	L00001A0156	L00001A0157	L00001A0159	L00001A0162	L00001A0163	L00001A0164
3,0 m	L00002A0173	L00002A0174	L00002A0176	L00002A0177	L00002A0179	L00002A0175	L00002A0180
5,0 m	L00003A0119	L00003A0121	L00003A0123	L00003A0124	L00003A0125	L00003A0126	L00003A0127
7,5 m	L00004A0109	L00004A0111	L00004A0112	L00004A0113	L00004A0114	L00004A0115	L00004A0116
10,0 m	L00005A0080	L00005A0081	L00005A0082	L00005A0083	L00005A0084	L00005A0085	L00005A0086



180°	Order-No.						
Length	grey	green	red	blue	yellow	black	white
0,5 m	L00000A0072	L00000A0073	L00000A0074	L00000A0075	L00000A0076	L00000A0077	L00000A0130
1,0 m	L00000A0081	L00000A0082	L00000A0083	L00000A0084	L00000A0085	L00000A0086	L00000A0131
2,0 m	L00001A0084	L00001A0085	L00001A0086	L00001A0087	L00001A0088	L00001A0089	L00001A0123
3,0 m	L00002A0112	L00002A0113	L00002A0114	L00002A0115	L00002A0116	L00002A0117	L00002A0141
5,0 m	L00003A0055	L00003A0056	L00003A0057	L00003A0058	L00003A0059	L00003A0060	L00003A0085
7,5 m	L00004A0054	L00004A0055	L00004A0056	L00004A0057	L00004A0058	L00004A0060	L00004A0071
10,0 m	L00005A0027	L00005A0028	L00005A0029	L00005A0030	L00005A0031	L00005A0032	L00005A0051



270°	Order-No.						
Length	grey	green	red	blue	yellow	black	white
0,5 m	L00000A0253	L00000A0255	L00000A0257	L00000A0259	L00000A0261	L00000A0263	L00000A0265
1,0 m	L00000A0254	L00000A0256	L00000A0258	L00000A0260	L00000A0262	L00000A0264	L00000A0266
2,0 m	L00001A0199	L00001A0200	L00001A0201	L00001A0202	L00001A0203	L00001A0204	L00001A0205
3,0 m	L00002A0203	L00002A0204	L00002A0205	L00002A0206	L00002A0207	L00002A0208	L00002A0209
5,0 m	L00003A0157	L00003A0158	L00003A0159	L00003A0160	L00003A0161	L00003A0162	L00003A0163
7,5 m	L00004A0145	L00004A0146	L00004A0147	L00004A0148	L00004A0149	L00004A0150	L00004A0151
10,0 m	L00005A0113	L00005A0114	L00005A0115	L00005A0116	L00005A0117	L00005A0118	L00005A0119



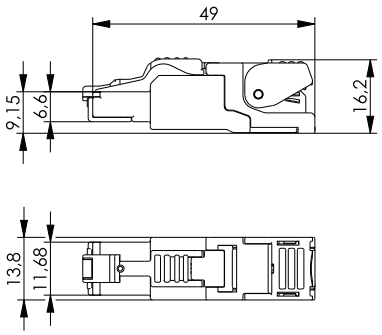
- **termination sequence acc. to EIA/TIA 568B**
- **90° / 180° / 270° moulded boot with latch protection**
- **colours: grey, green, red, blue, yellow, black, white, purple**
- **variants with very short boot**
- **variants with jacket LSZH, PVC, PUR**

RJ45 Plugs

	Plug MFP8 Cat.6$_A$	Plug MP8(8)FS Cat.6$_A$
Standards		
Connectors	IEC 60603-7-51	IEC 60603-7-51
Mechanical Characteristics		
Insertion force	≤ 30N	≤ 30N
Durability (mating cycles)	≥ 750	≥ 750
Reusable IDC	≤4 cycles	-
Material: cable boot	-	PVC UL94 V0 (Ø 6.3 mm / Ø 7.0 mm); PA6 UL94 V0 (Ø 6.0 mm)
Mating Requirements Cu-Conductor diameter: solid	0.51 - 0.64 mm (AWG24/1-22/1)	0.36 - 0.51 mm (AWG27/1 - 24/1)
Mating Requirements Cu-Conductor diameter: stranded	0.46 - 0.76 mm (AWG27/7-22/7)	0.46 - 0.61 mm (AWG27/7 - 24/7)
Core Diameter	0.85 - 1.6 mm	0.85 - 1.05 mm
Overall cable diameter	5.0 - 9.0 mm	5.5 - 7.3 mm
Crimp tool	N00000B0020	N00001A0002
Climatic Characteristics		
Temperature range	-40°C ... 70°C	-40°C ... 70°C
UL	E244889	E244889
Electrical Characteristics		
Current carrying capacity at 50°C	1 A	1 A
PoE+ acc to IEEE 802.3at	Adequate for Power over Ethernet+	
Transmission Chracteristics		
10 Gigabit Ethernet acc. to IEEE 802.3an	Adequate for 10 Gigabit Ethernet	Adequate for 10 Gigabit Ethernet

Plugs

Field assembly RJ45 plug MFP8

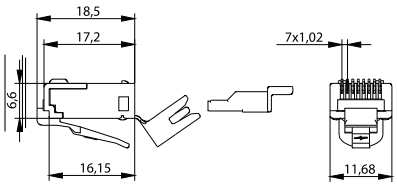


Order No.	Short name	Remarks	Type
J00026A2000	MFP8 T568 A Cat.6_A	AWG 27/7-22/7, AWG 24/1-22/, incl. preassembled dust protection cap	
J00026A2001	MFP8 T568 B Cat.6_A	AWG 27/7-22/7, AWG 24/1-22/, incl. preassembled dust protection cap	
J00026A2110	MFP8 T568 A Cat.6_A	AWG 27/7-22/7, AWG 24/1-22/, incl. preassembled dust protection cap	blister package (10 pcs.)
J00026A2111	MFP8 T568 B Cat.6_A	AWG 27/7-22/7, AWG 24/1-22/, incl. preassembled dust protection cap	blister package (10 pcs.)

- **preassembled protection cap**
- **robust zinc diecast housing**
- **360° shielding**
- **full metal shielding between pairs of wires**
- **three strain relief settings (cable diameters 5.0 mm to 9.0 mm)**
- **can be assembled in 60 seconds without any special tools**
- **four-chamber wire manager (available with colour code T568A or T568B)**
- **optimised for the field, including demanding applications**
- **suitable for cablings in office buildings, data centers, industrial facilities and home networks**
- **supreme reliability**
- **secure transmission even with outside interference**
- **ideal for network repairs, special length and extensions**
- **piercing contacts suitable for conductor cross-sections AWG27/7 - 22/7; AWG24/1 - 22/1**

RJ45 Plug MP8(8) FS Cat.6_A and Cable Boots

1



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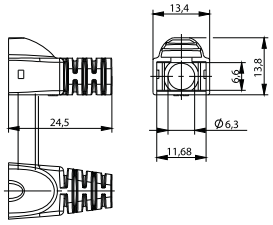
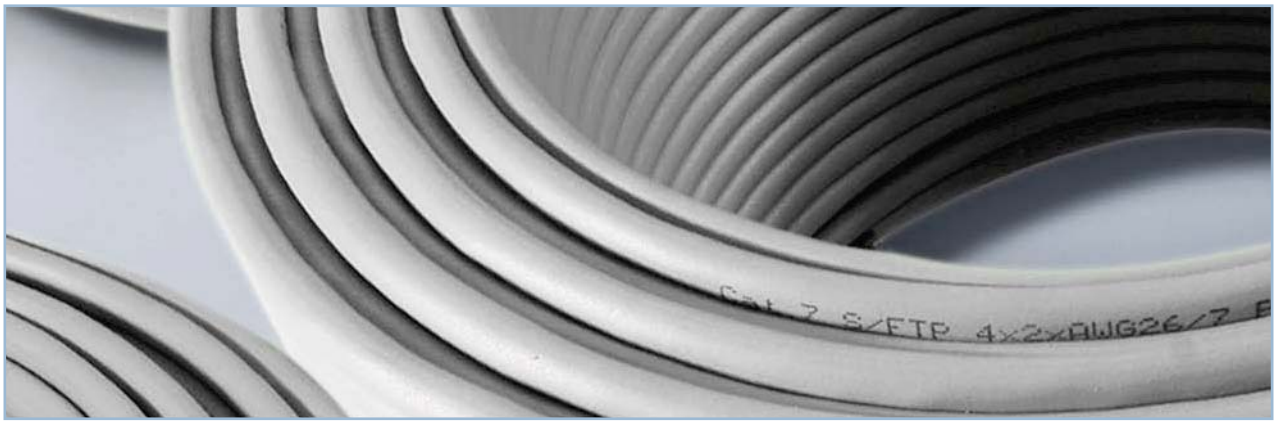
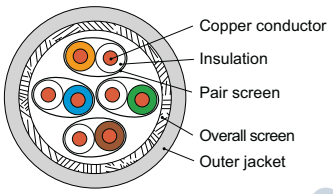


Order No.	Short name	Remarks	Fig.
J00026A0165	RJ45 plug MP8(8) FS Cat.6_A	8-way fully shielded with wire presorting; AWG 24-27 (stranded and solid); please order cable boot separately	1
B00080A0089	Cable boot for MP8 FS (J00026A0165)	Cable boot, grey RAL 7035, Ø 6,3 mm, with latch protection	2
B00080B0089	Cable boot for MP8 FS (J00026A0165)	Cable boot, red RAL 3017, Ø 6,3 mm, with latch protection	2
B00080C0089	Cable boot for MP8 FS (J00026A0165)	Cable boot, blue RAL 5015, Ø 6,3 mm, with latch protection	2
B00080D0089	Cable boot for MP8 FS (J00026A0165)	Cable boot, yellow RAL 1021, Ø 6,3 mm, with latch protection	2
B00080E0089	Cable boot for MP8 FS (J00026A0165)	Cable boot, green RAL 6016, Ø 6,3 mm, with latch protection	2
B00080F0089	Cable boot for MP8 FS (J00026A0165)	Cable boot, black RAL 9011, Ø 6,3 mm, with latch protection	2

Installation Cables



	AMJ 900 S/FTP Cat.7	AMJ 900 Outdoor S/FTP Cat.7	AMJ 600 Flex S/FTP Cat.7
Construction			
Conductor	Bare copper wire Ø 0.56 mm (AWG 23)	Bare copper wire Ø 0.56 mm (AWG 23)	Stranded anneal copper wire Ø 0.43 mm (AWG27/7)
Insulation	Foam skin polyethylene, Ø 1.35 mm	Foam skin polyethylene, Ø 1.4 mm	PE-Foam-PE, Ø1.04±0.05 mm
Twisting	2 cores to the pair	2 cores to the pair	2 cores to the pair
Cable lay up	4 pairs (PIMF)	4 pairs (PIMF)	4 pairs with different pitches
Pair screening	Alu laminated plastic foil	Alu laminated plastic foil	Alu-foil laminated mylar tape wrapped over twinning, with the alu side facing out
Overall screening	Copper braid, tinned	Copper braid, tinned	Tinned copper wire braiding, normally with min. 60% coverage
Outer jacket	FRNC, RAL 7035	PE, wall thickness 1.2 mm, for outdoor installation, UV stable	LSZH
Mechanical Properties			
Bending radius	≥40 mm without load ≥80 mm with load	≥40 mm without load ≥80 mm with load	≥25 mm without load ≥50 mm with load
Temperature range	during operation: -20°C...60°C during installation: 0°C...50°C	during operation: -55°C...70°C during installation: -20°C...50°C	during operation: -20°C...60°C during installation: 0°C...50°C
Transmission characteritstics (at 20°C)			
Acc. to	IEC 61156-5 Cat.7	IEC 61156-5 Cat.7	IEC 61156-5 Cat.7



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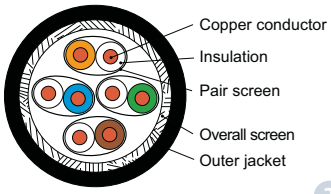

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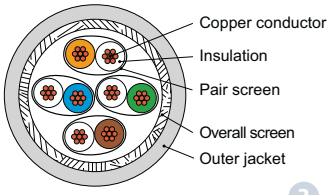
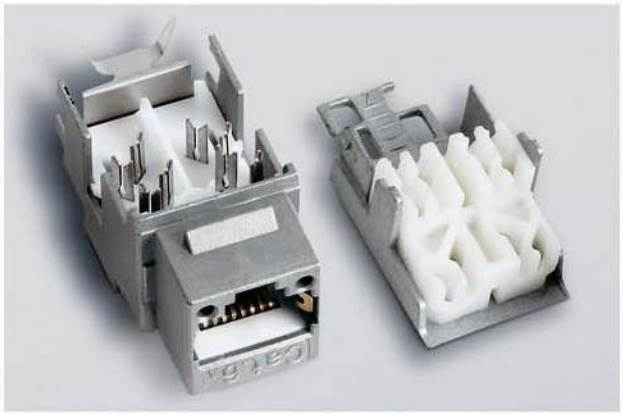
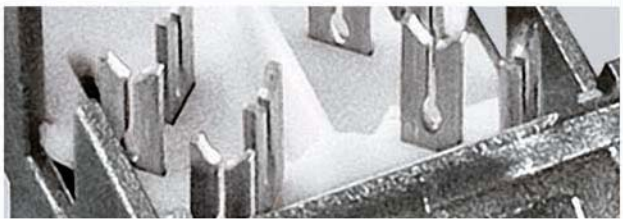


3

Order no.	Short name	Construction	Category	AWG/mm	Jacket	Colour	Length	Fig.
L02002A0123	AMJ 900	S/FTP	Cat.7	AWG23/1	LSZH	grey	500 m	1
L02002A0146	AMJ 900 Outdoor	S/FTP	Cat.7	AWG23/1	PE	black	500 m	2
L02002A0061	AMJ 600 Flex	S/FTP	Cat.7	AWG27/7	LSZH	grey	305 m	3

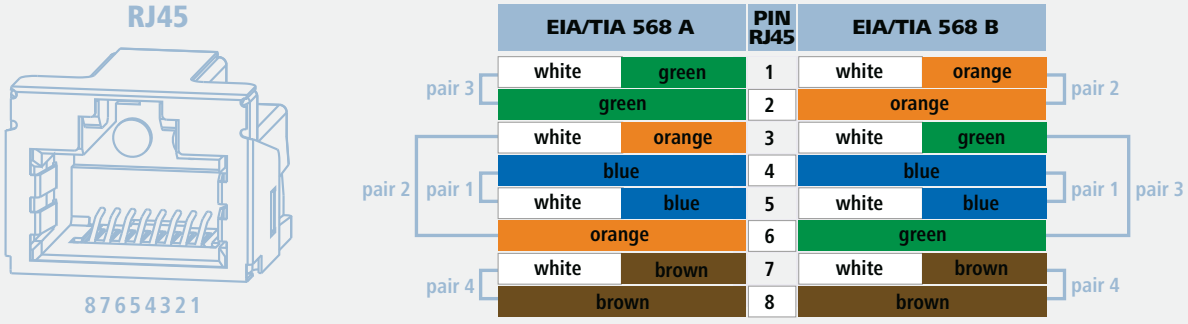




6.3 Modular System AMJ-S/AMJ

	AMJ-S Module Cat.6_A	AMJ Coupler Cat.6
Standards		
Connectors	IEC 60603-7-51	IEC 60603-7-5
Mechanical Characteristics		
Insertion force	≤ 30N	≤ 30N
Durability (mating cycles)	≥ 750	≥ 750
Cu-Conductor diameter: solid	0.4 - 0.64 mm (AWG26/1-22/1)	-
Cu-Conductor diameter: stranded	0.46 - 0.76 mm (AWG27/7-22/7)	-
Insulation Diameter	0.9 - 1.6 mm	-
Cable diameter	max. 9 mm	
Climatic Characteristics		
Ambient temperature	-40°C ... 70°C	-40°C ... 70°C
Electrical Characteristics		
Current carrying capacity at 50°C	1 A	1 A
PoE+ acc to IEEE 802.3at	Adequate for Power over Ethernet+	
Transmission Chracteristics		
Class 6_A (Component)	ISO/IEC 11801, DIN EN 50173-1	-
Class E_A (Channel)	ISO/IEC 11801, DIN EN 50173-1	ISO/IEC 11801, DIN EN 50173-1
10 Gigabit Ethernet acc. to IEEE 802.3an	Adequate for 10 Gigabit Ethernet	Adequate for 10 Gigabit Ethernet

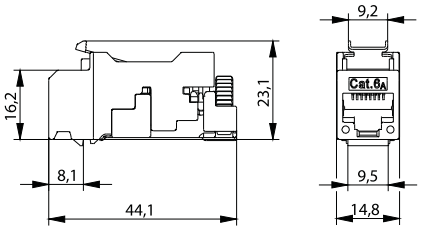
RJ45 pin colour coding acc. to EIA/TIA 568 A and B



Modular System AMJ-S/AMJ

AMJ-S Module / AMJ Coupler

1



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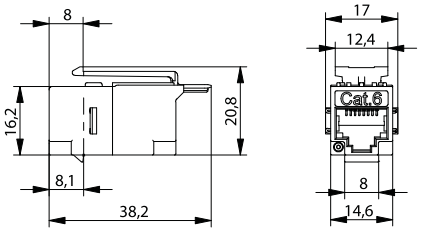

Order No.	Short name	Remarks	Type	Fig
J00029A2000	AMJ-S Module T568 A Cat.6A	tool-free connectivity, suitable for RJ45/11/12 plugs		1
J00029A2001	AMJ-S Module T568 B Cat.6A	tool-free connectivity, suitable for RJ45/11/12 plugs		1
J00029A2110	AMJ-S Module T568 A Cat.6A	tool-free connectivity, suitable for RJ45/11/12 plugs	blister package (24 pcs.)	1
J00029A2111	AMJ-S Module T568 B Cat.6A	tool-free connectivity, suitable for RJ45/11/12 plugs	blister package (24 pcs.)	1
J00029A0061	AMJ Coupler K Cat.6, f-f	suitable for RJ45/11/12 plugs		2
J00029B0061	AMJ Coupler K Cat.6, f-f	suitable for RJ45/11/12 plugs	blister package (24 pcs.)	2

Applications

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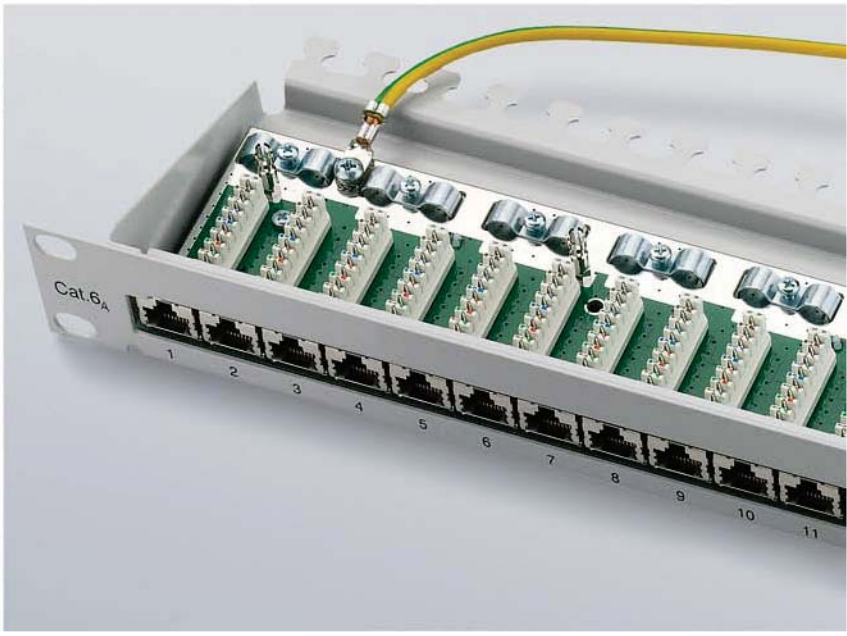
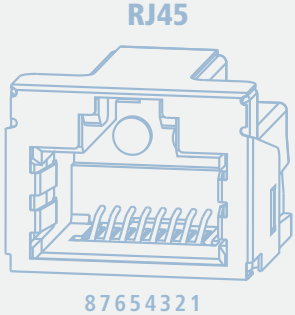
Order No.	Short name	Type	Remarks	Fig
H02000A0070	Outlet IP44 AP	double gang incl. faceplate, without module/coupler	for AMJ modules	1
H02025A0167	19" Frontplate 1 HU	incl. cable strain relief and grounding kit, w/o module/coupler	24 ports, light grey	2
J00029A2110	19" Frontplate 1 HU	incl. cable strain relief and grounding kit, w/o module/coupler	24 ports, black	2
H02000A0080	MPD8 AMJ/UMJ	Mini Distributor w/o module/coupler, stackable	8 ports	3
H02000A0081	MPD12 AMJ/UMJ	Mini Distributor w/o module/coupler, stackable	12 ports	4



6.4 Patch Panels and Distributors

	19" Patch Panels Cat.6_A	19" Feedthrough Panel	16 Port Cross Connect Panel	Mini Distributor Cat.6_A
Standards				
Connectors	IEC 60603-7-51	IEC 60603-7-5	IEC 60603-7-5	IEC 60603-7-51
Mechanical Characteristics				
Insertion force	≤ 30 N	≤ 30 N	≤ 30 N	≤ 30 N
Durability (mating cycles)	≥ 750	≥ 750	≥ 750	≥ 750
LSA Plus: Cu conductor diameeter	solid 0.40 - 0.65 mm AWG26/1 - AWG22/1	-	-	solid 0.40 - 0.65 mm AWG26/1 - AWG22/1
LSA Plus: Wire diameter	0.7 - 1.6 mm	-	-	0.7 - 1.6 mm
Environmental Requirements				
Ambient temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
Electrical Characteristics				
Current carrying capacity at 50°C	1 A	1 A	1 A	1 A
PoE+ acc. to IEEE 802.3at	suitable for PoE+	suitable for PoE+	suitable for PoE+	suitable for PoE+
Transmission Characteritstics				
Category 6_A (Component)	ISO/IEC 11801, DIN EN 50173-1			
10 Gigabit Ethernet acc. to IEEE 802.3an	fullfiled	fullfiled	fullfiled	fullfiled

RJ45 pin colour coding acc. to EIA/TIA 568 A and B



	EIA/TIA 568 A	PIN RJ45	EIA/TIA 568 B	
pair 3	white / green	1	white / orange	pair 2
	green	2	orange	
pair 2	white / orange	3	white / green	pair 3
pair 1	blue	4	blue	pair 1
pair 2	white / blue	5	white / blue	pair 1
	orange	6	green	pair 3
pair 4	white / brown	7	white / brown	pair 4
	brown	8	brown	

Patch Panels and Distributors

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Order No.	Short name	Type	Colour	Fig
J02023A0050	MPP24-HS K Cat.6_A	24x RJ45 shielded	light grey RAL 7035	1
J02023S0050	MPP24-HS K Cat.6_A	24x RJ45 shielded	black	1
J02024A0007	19" Feedthrough panel, 1 HU	incl. 48 AMJ Coupler K Cat.6 (4x12) shielded	light grey RAL 7035	2
J02024C0007	19" Feedthrough panel, 1 HU	incl. 48 AMJ Coupler K Cat.6 (4x12) shielded	black	2
J02022A0059	16 Port Cross Connect Panel	32x RJ45 feedthrough shielded	black	3
J02021A0052	MPD6-HS flex K Cat.6_A	shielded, stackable, incl. 4 connection pins for stacking	pure white RAL 9010	4
J02021A0054	MPD6-HS K Cat.6_A 3 HU	shielded, 6x RJ45, 3 HU / 8 PU	front panel anodized alu	5




6.5 Components for Mounting Rails

Order No.	Short name	Type	Remarks	Fig
J00023A0205	Mounting rail outlet TS45 AMJ-S	incl. AMJ-S Module Cat.6_A T568A	for mounting rail TH35	1
J00023A0206	Mounting rail outlet TS45 AMJ-S	incl. AMJ-S Module Cat.6_A T568B	for mounting rail TH35	1
J80023A0003	STX Mounting Rail Outlet	incl. RJ45 coupler Cat.6	for mounting rail TH35	2
J80023A0004	STX Mounting Rail Outlet	incl. USB coupler type A f-f	for mounting rail TH35	3
H06000B0045	Mounting rail adaptor	metal, without module	for mounting rail TH35	4
J02021A0055	MPD6-HS K Cat.6_A	6-port mini distributor metal incl. 2 mounting rail adaptors	for mounting rail TH35	5

Accessories & Tools

6.6

Accessories

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Order No.	Short name	Remarks	Colour	Fig
B00001A0016	Retrofit dust protection flap for AMJ-S, AMJ		black (other colours on request)	1
H00030F0014	Dust cover for RJ45		black (other colours on request)	2
B00080A0089	Cable boot for MP8 FS (J00026A0165)	Ø 6,3 mm, with latch protection	grey (other colours on request)	3
B00081A0047	Captive RJ45 plug protective cap		black	4

Tools

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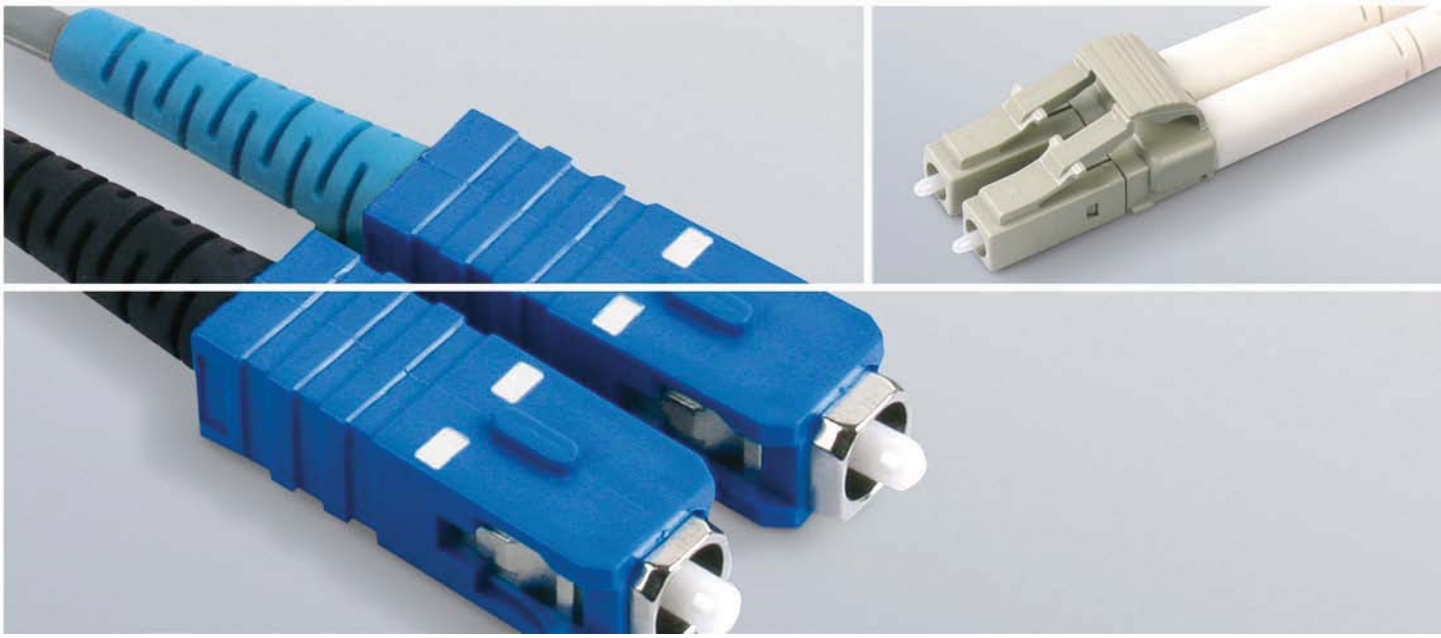
Order No.	Short name	Remarks	Fig
N01002A0001	Insertion tool for IDC termination (LSA Plus)	with wire cutter	1
N00000B0020	Parallel pressing tool	for AMJ, UMJ, STX Module and MFP8 plug assembly	2
N00001A0002	Crimp Tool Professional (for frequent use)	with insert for shielded MP8 FS plug J00026A0165	3



7.1 FO Patch Cords

Order Matrix

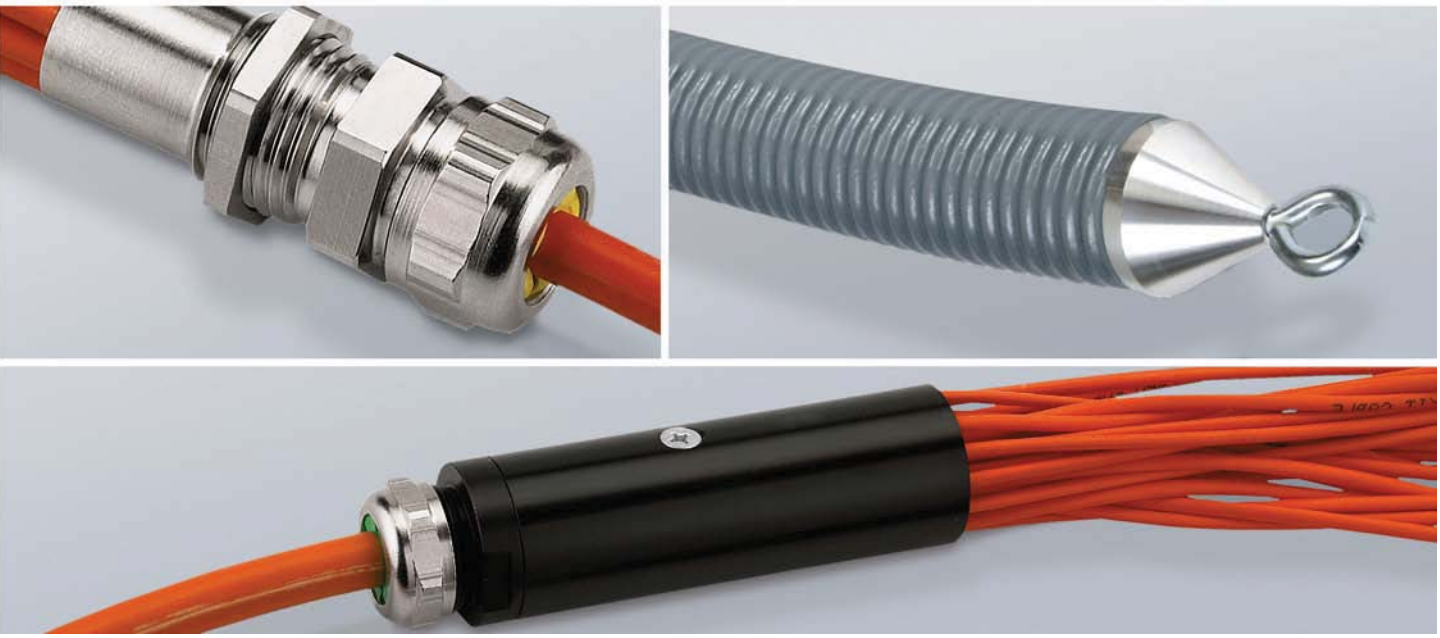
		STEP 1		STEP 2		STEP 3		STEP 4
		Connector left side		Connector right side		Fiber / Cable		Length
		PC A	APC B	PC A	APC B	Simplex A	Duplex B	>1 m
	1	ST	-	ST	-	OS2 (9 µ)	OS2 (9 µ)	
	2	SC	SC	SC	SC	OM2 (50 µ)	OM2 (50 µ)	
	3	LC	LC	LC	LC	OM3 (50 µ)	OM3 (50 µ)	
	4	FC	FC	FC	FC	OM4 (50 µ)	OM4 (50 µ)	
	5	E2000	E2000	E2000	E2000	OM1(62,5 µ)	OM1(62,5 µ)	
	6	DIN	DIN	DIN	DIN			

Example: A1 - B3 - B1 - 5

STEP 1	STEP 2	STEP 3	STEP 4
Connector left: ST / PC	**Connector right:** LC / APC	**Fiber / Cable:** Duplex OS2	**Length:** 5 m

How to create your order code for FO Patch Cords:

The following example shows how, by using the matrix, you can create a product specification for your own, customised product. Simply refer this number when you next send in an inquiry. In doing so, we can readily identify your special configuration.

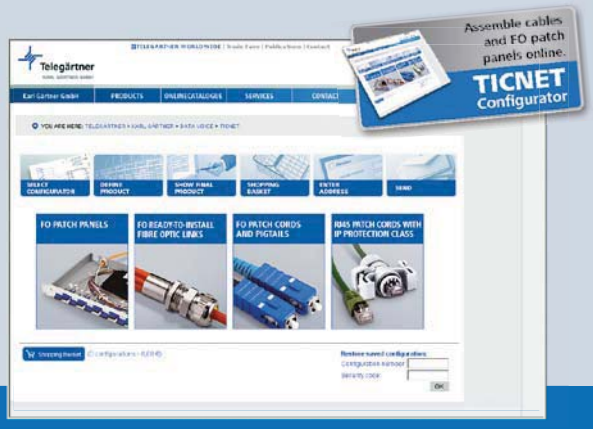


7.2

FO Ready-to-install Fiber Optic Links

	Central Loose Tube	Stranded Loose Tube	Outdoor Cable Duplex	Outdoor Cable Multifiber
Mechanical Characteristics				
Calbe structure acc. DIN/VDE 0888	A/I-DQ(ZN) BH …	A/I-DQ(ZN) BH 1..4x12	AT-V(ZN)H11Y 2...	on request
Cable diameter in mm	≤ 6,1	≤ 12,5	6	on request
Max. pulling tension short-term/long-term	1500 / 700 N	6000 N	1000 / 2000 N	on request
Min. bending radius short-term/long-term	15 x Ø / 10 x Ø	250 / 190 mm	25 mm	on request
Weight in kg/km	37	185	28	on request
Climatic Characteristics				
Operating temperature / Storage temperature in °C	-30 / +70	-25 / +60	-40 / +80	-40 / +80
Installation temperature in °C	-5 / +50	-5 / +50	-20 / +60	-
Flame retardancy	IEC 60332-1	-5 / +50	-	-
Halogen-free	IEC 60754-2	IEC 60332-1-2	yes	-
Watertightness	IEC 60794-1-2-F5	IEC 60754-2	-	-
UV resistance	ISO 4892-2	IEC 60794-1-2-F5B	yes	-

Ideal for planners and installers: Simply assemble cables and fiber optic patch panels online



Do you want to assemble cables and connectors online or a fibre optic patch panel to meet your specific needs and then send an order inquiry to your local specialist retailer straight away? Then the TICNET configurator developed by Telegärtner is just what you need:

TICNET is simple
TICNET is available around the clock.

TICNET is fast
The user interface is so clear and easy to follow that even complex combinations can be assembled in just a few clicks.

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7.3 FO Patch Panels

	ECONOMY V		BASIS V			PROFI Plus	
Mechanical Characteristics							
Housing	sheet steel 1 mm, powder-laminated, light grey RAL 7035		sheet steel 1 mm, powder-laminated, light grey RAL 7035			sheet steel 1 mm, powder-laminated, light grey RAL 7035	
Protection class acc. To IEC 60529	IP20		IP20			IP20	
Front plates	sheet aluminum 1,5 mm, powder-laminated, light grey RAL 7035, port no. imprinted, marking strip with plastic cover optional		sheet aluminum 1,5 mm, powder-laminated, light grey RAL 7035, port no. imprinted, marking strip with plastic cover optional			sheet aluminum 1,5 mm, powder-laminated, light grey RAL 7035, port no. imprinted, marking strip with plastic cover optional	
Cable entries	strain relief bar for cable ties		M20 for 5-9 mm; M25 for 9-20 mm cable; diameter in 4 steps			M20 for 5-9 mm; M25 for 9-20 mm cable; diameter in 4 steps	
Panel piercings	for ST, SC, SC Duplex, E2000, E2000 Compact, MT-RJ adaptor, LC Duplex, DIN, FC/PC, F-SMA		for ST, SC, SC Duplex, E2000, E2000 Compact, MT-RJ adaptor, LC Duplex, DIN, FC/PC, F-SMA			for ST, SC, SC Duplex, E2000, E2000 Compact, MT-RJ Jack, LC Duplex, DIN, FC/PC, F-SMA	
Dimensions in mm:	**1 HU**	**2 HU**	**1 HU**	**2 HU**	**3 HU**	**1 HU**	**2 HU**
Width	482	482	482	482	482	482	482
Height	44	88	44	88	132	44	88
Depth	175	175	265	265	265	230	230

Order Matrix

STEP 1	STEP 2			STEP 3		STEP 4
FO Patch Panel*	Adaptor/Pigtail			Adaptor/Fiber		Adaptors
		PC A	APC B	Simplex A	Duplex B	
 Economy V	 1	ST	-	OS2 (9µ)	OS2 (9µ)	6
 Basis V	 2	SC	SC	OM2 (50µ)	OM2 (50µ)	12
	 3	LC	LC	OM3 (50µ)	OM3 (50µ)	24
	 4	FC	FC	OM4 (50µ)	OM4 (50µ)	48
 Profi Plus	 5	E2000	E2000	OM1(62,5µ)	OM1(62,5µ)	
	 6	DIN	DIN			

* other housings on request

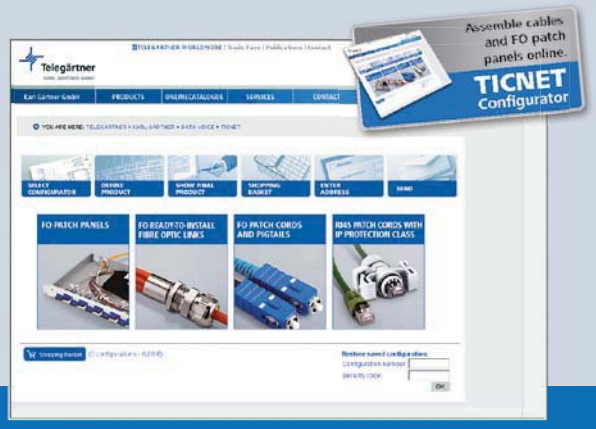
Example: Basis V - A1 - B1 - 12

STEP 1	STEP 2	STEP 3	STEP 4
FO Patch Panel: Basis V	Connector: ST / PC	Fiber / Cable: Duplex OS2	Adaptors: 12

How to create your order code for FO Patch Panels:

The following example shows how, by using the matrix, you can create a product specification for your own, customised product. Simply refer this number when you next send in an inquiry. In doing so, we can readily identify your special configuration.

Ideal for planners and installers: Simply assemble cables and fiber optic patch panels online



Do you want to assemble cables and connectors online or a fibre optic patch panel to meet your specific needs and then send an order inquiry to your local specialist retailer straight away? Then the TICNET configurator developed by Telegärtner is just what you need:

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TICNET is fast
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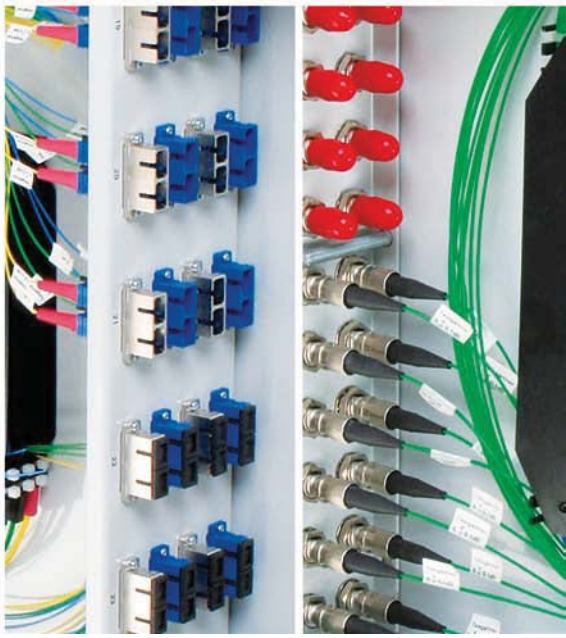


7.4 FO Wall Distributors and Splice Boxes

	FO Compact Splice Box	FO Splice Box IP66 S	Wall Distributor ODB 54
Mechanical Characteristics			
Housing	sheet steel 1mm, powderlaminated, light grey RAL 7035	thermoplastic, non halogen, flame retardant, light grey RAL 7035	thermoplastic PC-ABS, non halogen, flame retardant, pure white RAL 9010
Distribution plates	aluminum sheet 1,5 mm, powder-laminated, light grey RAL 7035		Aluminium sheet 1,5 mm, anodized
Cable entries / Strain relief	strain relief bar for cable ties	M12; M16; M20; M25; for Ø4-15.5 mm	2x M20 cable gland for cables Ø 5 - 9 mm
Protection class acc. To IEC 60529	IP 20	IP 66	IP 54
Dimension: Width	265 mm	254 mm	250 mm
Dimension: Height	150 mm	180 mm	200 mm
Dimension: Depth	55 mm	90 mm	56 mm

FO Compact Splice Box

1

2

Order No.	Short name	Remarks	Fig
H02050A0013	FO Compact Splice Box	Housing with lockable cover, with 2 cable entry openings for incoming and outgoing cables to be fixed by cable ties, with sealing straps, for storage of 4 splice cassettes maximum or 1 cassette and 1 distribution plate	1
H02025A0293	Distribution plate	12x ST	2
H02025A0261	Distribution plate	8x FC/PC	2
H02025A0350	Distribution plate	6x E2000	2
H02025A0115	Distribution plate	6x LC Duplex	2
H02025A0266	Distribution plate	8x DIN	2
H02025A0363	Distribution plate	8x SC Duplex	2

FO Splice Box IP66


1


2

Order No.	Short name	Remarks	Fig
H02050A0087	FO Splice Box IP66 S	Housing for storage of up to 5 splice cassettes Telekom or 2 splice cassettes Telekom and 1 distribution plate	1
H02025A0331	Distribution plate	12x ST	2
H02025A0330	Distribution plate	12x LC Duplex	2
H02025A0368	Distribution plate	12x E2000	2
H02025A0369	Distribution plate	12x FC/PC	2
H02025A0370	Distribution plate	12x DIN	2

Wall Distributor ODB 54

Order No.	Short name	Remarks
H02050A0190	ODB 54 housing	for splicing of max. 24 fibers
H02050A0193	ODB 54	6xSC Duplex adaptor, singlemode, blue, 12x 9/125 OS2
H02050A0191	ODB 54	6xSC Duplex adaptor, multimode, beige, 12x 50/125 OM2
H02050A0197	ODB 54	6xLC Duplex adaptor, singlemode, blue, 12x 9/125 OS2
H02050A0195	ODB 54	6xLC Duplex adaptor, multimode, blue, 12x 50/125 OM2

other solutions on request

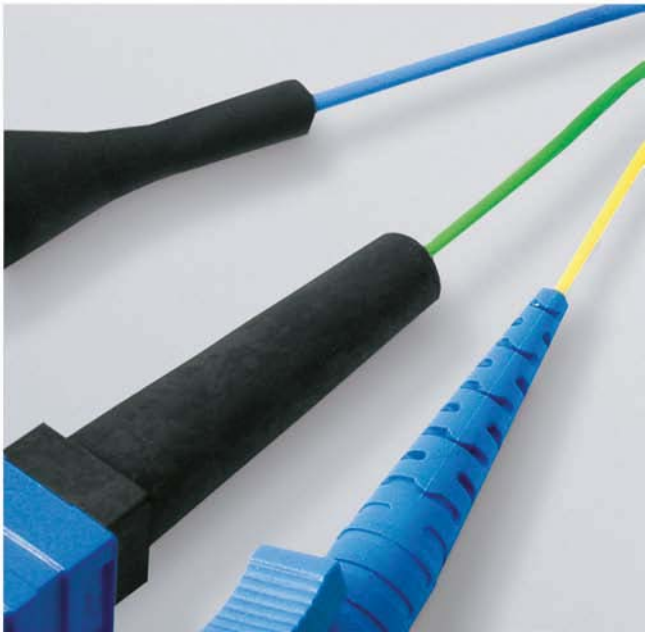
STX Mounting Rail Distributors


1


2

Order No.	Short name	Remarks	Fig
H82050A0002	STX Mounting Rail Distributor	6xSC Duplex, phosphor bronze sleeve/plastic housing, Multimode	1
H82050S0003	STX Mounting Rail Distributor	6x SC Duplex, ceramic sleeve, plastic housing, Singlemode/Multimode	1
H82050A0005	STX Mounting Rail Distributor	6xLC Duplex, metal sleeve/plastic housing, Multimode	2
H82050S0005	STX Mounting Rail Distributor	6xLC Duplex, ceramic sleeve/plastic housing, Singlemode/Multimode	2

other solutions on request



7.5 FO Fiber Pigtails

Order Matrix

		STEP 1		STEP 2	STEP 3
		Connector		Fiber	Length
		PC A	APC B		>1 m
	1	ST	-	OS2 (9 µ)	
	2	SC	SC	OM2 (50 µ)	
	3	LC	LC	OM3 (50 µ)	
	4	FC	FC	OM4 (50 µ)	
	5	E2000	E2000	OM1(62,5 µ)	
	6	DIN	DIN		

Example: A1 - OM4 - 2

STEP 1	STEP 2	STEP 3
Connector: ST / PC	**Fiber** OM4 (50 µ)	**Length:** 2 m

How to create your order code for FO Fiber Pigtails:

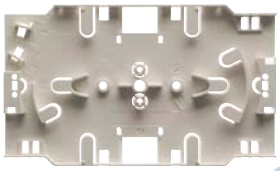
The following example shows how, by using the matrix, you can create a product specification for your own, customised product. Simply refer this number when you next send in an inquiry. In doing so, we can readily identify your special configuration.

Splice Cassettes with Pigtails coloured acc. to IEC 60304 (DIN VDE 0888)

Order No.	Description	Pigtails	Plug: Colour	Remarks
H02050A0122	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, ST	metal	stripped for splicing
H02050W0123	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, SC	blue	stripped for splicing
H02050W0091	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, SC/APC	green	stripped for splicing
H02050A0126	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, LC	blue	stripped for splicing
H02050A0169	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, LC/APC	green	stripped for splicing
H02050A0178	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, E2000	green	stripped for splicing
H02050A0179	Splice cassette with pigtails, assembled	12 x 9/125, OS2, 2m, E2000/APC	blue	stripped for splicing
H02050A0060	Splice cassette with pigtails, assembled	12 x 50/125, OM2, 2m, ST	metal	stripped for splicing
H02050W0072	Splice cassette with pigtails, assembled	12 x 50/125, OM2, 2m, SC	beige	stripped for splicing
H02050A0180	Splice cassette with pigtails, assembled	12 x 50/125, OM2, 2m, E2000	black/orange	stripped for splicing
H02050A0080	Splice cassette with pigtails, assembled	12 x 50/125, OM2, 2m, LC	beige	stripped for splicing
H02050A0134	Splice cassette with pigtails, assembled	12 x 50/125, OM3, 2m, ST	metal	stripped for splicing
H02050W0135	Splice cassette with pigtails, assembled	12 x 50/125, OM3, 2m, SC	aqua	stripped for splicing
H02050A0137	Splice cassette with pigtails, assembled	12 x 50/125, OM3, 2m, LC	aqua	stripped for splicing
H02050A0181	Splice cassette with pigtails, assembled	12 x 50/125, OM3, 2m, E2000	black/orange	stripped for splicing
H02050A0215	Splice cassette with pigtails, assembled	12 x 50/125, OM4, 2m, ST	metal	stripped for splicing
H02050A0216	Splice cassette with pigtails, assembled	12 x 50/125, OM4, 2m, SC	black	stripped for splicing
H02050A0217	Splice cassette with pigtails, assembled	12 x 50/125, OM4, 2m, LC	black	stripped for splicing
H02050A0218	Splice cassette with pigtails, assembled	12 x 50/125, OM4, 2m, E2000	black/red	stripped for splicing




7.6 FO Accessories







Order No.	Description	Remarks	Fig
H02050A0061	Splice cassette Telekom	155 x 92 x 8 mm, for 2 splice holders	1
B06015A0086	Cover for splice cassette Telekom	155 x 92 x 2 mm	2
F08000A0002	Splice holder for 12 crimp splice protectors	System Telekom	3
F08000A0008	Splice holder for 6 shrink splices	for shrink splice protector Ø 3 mm	4
F08000A0014	Crimp splice protector	System Telekom	5
F08000A0010	Splice protector for shrink splice	Ø 3 mm; L=45 mm	6
F08000A0011	Splice protector for shrink splice	Ø 3 mm; L=60 mm	6
H01011A0027	Cable gland M20 (for cable Ø 6 - 10 mm)	Polyamide PA6, grey	7
H01012A0050	Cable gland M20 (for cable Ø 7 - 13.5 mm)	Polyamide PA6, grey	7
N04001A0081	Fiber tester with adaptors for ferrules ST, SC, FC, LC	for visual fault locating in FO links	8
N04001A0071	Cleaning cartridge for dry cleaning	Package with 10 pcs. each with 50 tissues, for ViewConn Plus	9

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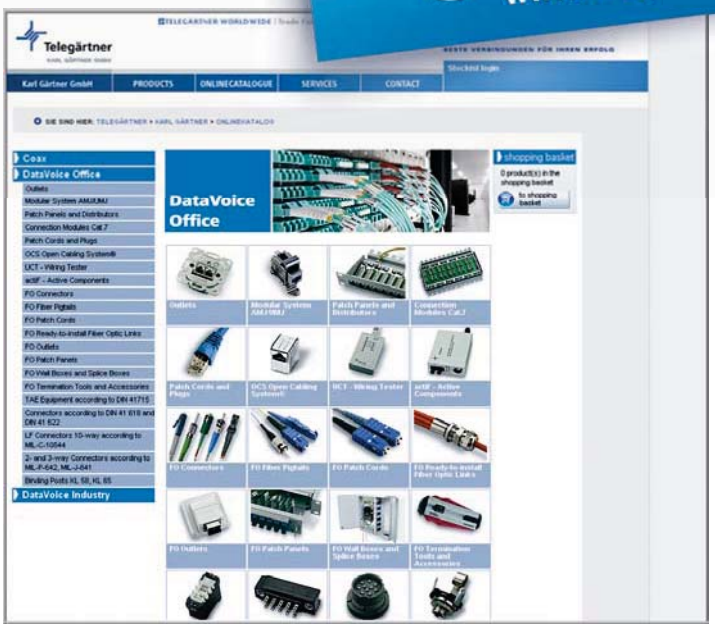

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