

TECHNICAL SPECIFICATIONS

VOLUME 2

- ULTIMATE
- FIBEROPTIC
- MINIMAX



fischer[®]
CONNECTORS



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VOLUME 2



	RUGGED COMPACT LIGHTWEIGHT	ROBUST OPTICAL PERFORMANCE EASY CLEANING
Locking	Push-pull Quick-release	Push-pull
Shell material	Brass Aluminum	Brass
Plating	Nickel Anthracite / Black (ULTIMATE 80)	Chrome over Nickel
Plug ø [mm]	12 to 29	13 or 24
Number of contacts	2 to 42	1 to 4 fibers / Hybrid 2+2
AWG	AWG9-32	AWG17 (hybrid)
Contact type	Low voltage	Fiber optic / Low voltage (hybrid)
Test voltage DC [kV]	Up to 3.7	Up to 2.8
Current rating [A]	Up to 26	Up to 10
Termination	Contact: Crimp / Solder / PCB	Contact: Optical termini / Solder (hybrid)
Sealing level	IP68/69 Hermetic	IP67/68
Mating cycles	Up to 10,000	1,000



Technical specifications for our Fischer Core Series
can be found in **VOLUME 1**.

Connector overview

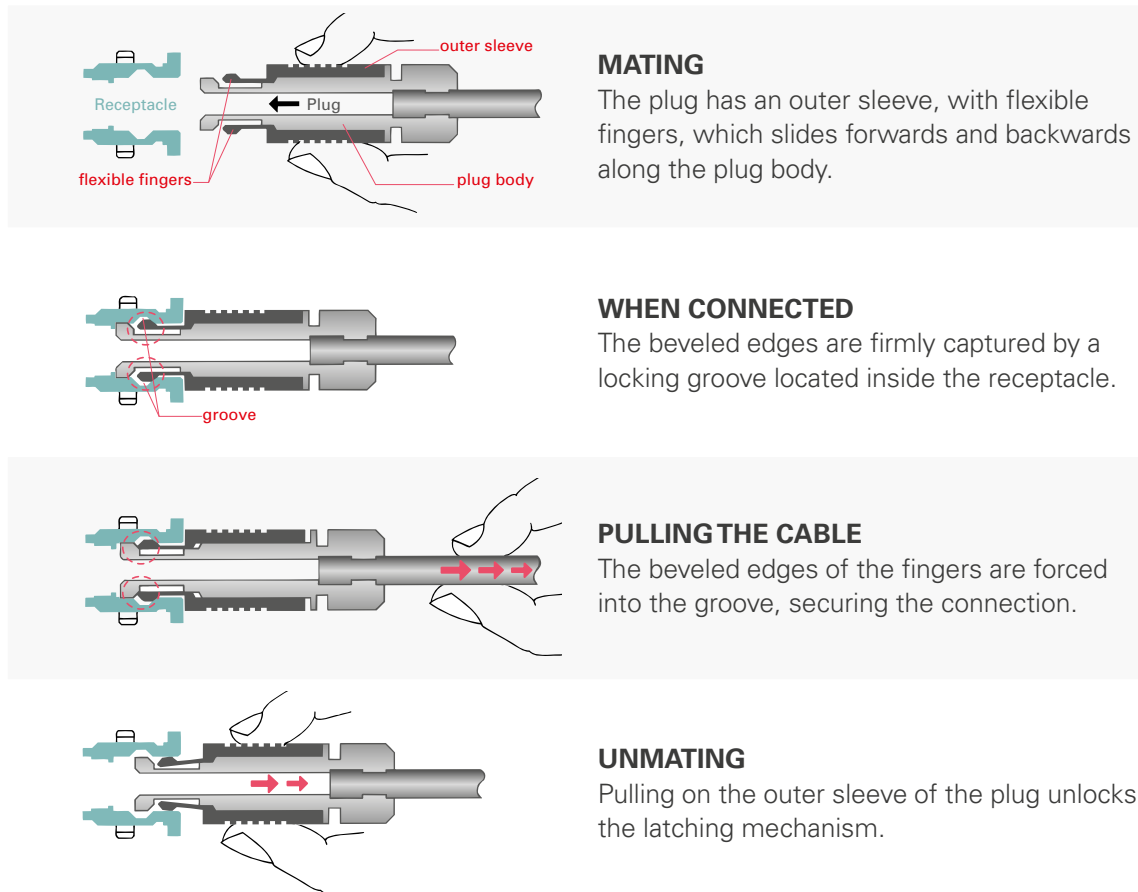


HIGH-DENSITY MINIATURIZATION
HIGH-SPEED DATA TRANSFER
RELIABILITY

Locking	Push-pull Screw-locking / Quick-release
Shell material	Brass
Plating	Chrome over Nickel Anthracite Nickel
Plug ø [mm]	9.9 to 14.9
Number of contacts	4 to 30
AWG	AWG18-30
Contact type	Low voltage
Test voltage DC [kV]	Up to 2.4
Current rating [A]	Up to 10
Termination	Contact: Solder / PCB
Sealing level	IP68
Mating cycles	5,000

ORIGINAL PUSH-PULL LOCKING SYSTEM

Fischer Connectors' original push-pull automatic locking system is widely adopted by the industry for its ease of use, safety of mating and speed in connection and disconnection.



OTHER LOCKING SYSTEMS

LANYARD

Combines push-pull automatic locking with an emergency release lanyard.

QUICK-RELEASE

Designed without a locking mechanism for emergency release.

FRICTION

Designed without a snapping mechanism.

TAMPERPROOF

Features an integral safety locking ring to prevent unauthorized or unintentional disengagement.

SCREW-LOCKING

Enables firm locking by circular movement with the plug's outer sleeve and receptacle feature threading.

Product specifications

SEALING CATEGORIES

The IP (Ingress Protection) classification system provides a reliable method of comparing relative levels of sealing between various connector products.

The protection level offered by a typical envelope is described in IEC 60529, published by the International Electrotechnical Commission (IEC). While the first number describes the level of protection from solid objects, the second one relates to protection from liquids.

Tests performed during the design and qualification of Fischer Connectors' environmentally sealed products are standardized to IP68 at a depth of 2 meters and for duration of 24 hours. Fischer Connectors' hermetically sealed products achieve IP69.

The digits indicate conformity with the conditions summarized in the tables aside.

IP RATING

SOLIDS

0		Non-protected
1		Protected against solid objects greater than 50 mm
2		Protected against solid objects greater than 12 mm
3		Protected against solid objects greater than 2.5 mm
4		Protected against solid objects greater than 1.0 mm
5		Dust protected
6		Dust tight

WATER

0		Non-protected
1		Protected against dripping water
2		Protected against dripping water when filled, up to 15°
3		Protected against spraying water
4		Protected against splashing water
5		Protected against water jets
6		Protected against heavy seas
7		Protected against immersion effects
8		Protected against submersion
9		Protected against intense water jets

Example:

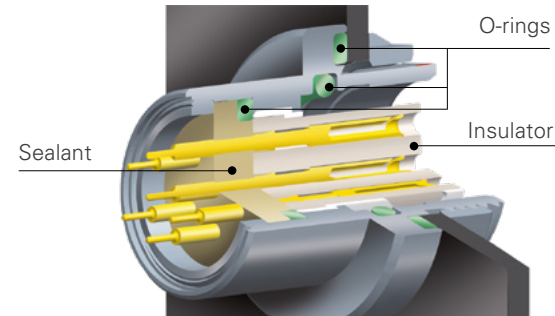
IP68

INGRESS PROTECTION

COMMONLY USED SEALING LEVELS

- IP50 indoor unexposed applications
- IP68 watertight sealing
- Hermetic sealing

Each requires different sealing levels and, therefore, different connector solutions.



IP50 INDOOR / UNEXPOSED APPLICATIONS

Typically for indoor or industrial applications, the required sealing level is IP50, since the device needs to be protected against dust but not exposed to water.

The IP50 rating can be improved with additional accessories like boots or protective sleeves.



IP68 WATERTIGHT SEALING

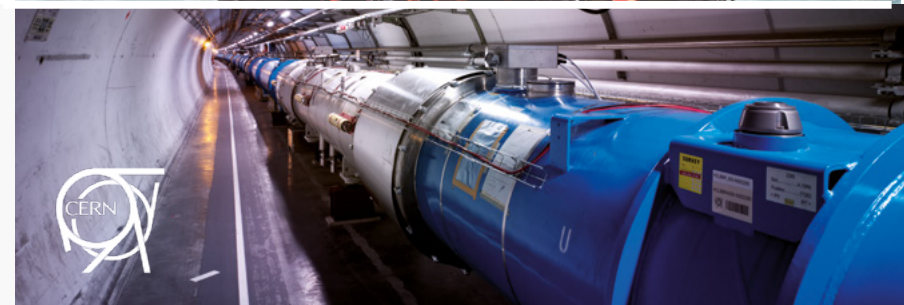
Typically for applications requiring outdoor use where they might be exposed to water submersion, rain, sand, mud or any other environmental stress.



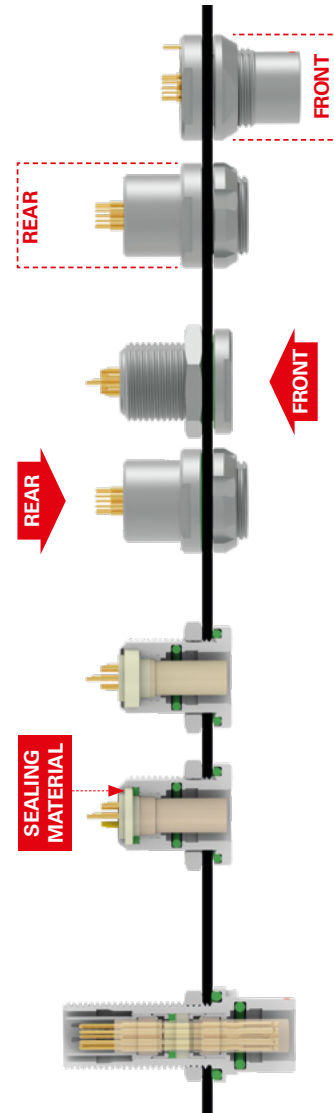
HERMETIC SEALING

Typically for applications requiring gas tightness like vacuum applications and pressurized vessels, immersed for long periods of time or exposed to strong jets.

100% of the hermetic pieces are tested with a leak testing instrument to ensure a leak smaller than 10^{-8} mbar l/s.



HOW TO CHOOSE YOUR RECEPTACLE BODY STYLES



Front and rear projecting

- Depending on whether you need the space saving inside or outside the device
- Also available in front or rear mounting

Front and rear mounting

- Depending on how you need to process your assembly
- Rear mounting is commonly used for PCB mount

IP68 watertight or hermetic designs

- Hermetic has a specific sealing material for best sealing under high pressures

Feedthrough

- Hermetic panel bulkhead feedthrough

MATERIALS

MATERIAL NAME	IDEAL FOR	TEMPERATURE	MAIN ATTRIBUTES
SHELL MATERIAL			
Chromium-plated brass	Ruggedness	-100 to +200°C	Salt mist and mechanical resistance, cost efficiency, electrical conductivity
Aluminum	Lightweight	-100 to +200°C	Lightweight
Stainless steel	Cleaning / Radiation	-100 to +350°C	Corrosion resistance, surface cleanability, nuclear radiation and mechanical resistance
PEI	Sterilization	-65 to +200°C	Sterilization in autoclave, EtO, Cidex, gamma radiation, Steris®, Sterrad®
PBT	Insulation	-65 to +135°C	Electrical insulation, low temperature manipulation
ABS	Cost efficiency	-20 to +65°C	Disposable solutions, medical applications
CONTACT BLOCK MATERIAL			
PEEK	High temperature	-65 to +250°C	High temperature, high chemical and high radiation resistance
LCP	High temperature	-65 to +200°C	High temperature and high chemical resistance
PBT	Cost efficiency	-65 to +135°C	High chemical resistance, cost efficiency
PTFE	Electrical insulation	-65 to +160°C	High dielectric strength, high chemical resistance
ABS	Cost efficiency	-20 to +65°C	Disposable solutions, good stability
O-RING & SEALING MATERIAL			
FPM (Viton®)	Hermeticity	-20 to +200°C	Acids, weather, ozone, fuels, mineral and silicone oils, high vacuum, gamma rays
EPDM	Low temperature	-50 to +160°C	Alcohol, weather, hot water, vapour, detergents, gamma rays
NBR	Oil resistance	-30 to +110°C	Acids, mineral oils, petrol, weather, detergents
FVMQ	High temperature oil resistance	-55 to +200°C	Mineral oils, alcohol, weather, hot water, detergents
TPE	Soft accessories	-55 to +130°C	Very resistant, except to aromatic and chlorinated hydrocarbon
Silicone based resin	IP68 sealing	-55 to +200°C	Mineral oils, acids, alkalines, inorganic saline solutions
Epoxy based resin	Hermeticity	-65 to +150°C	High chemical and radiation resistance

Product specifications

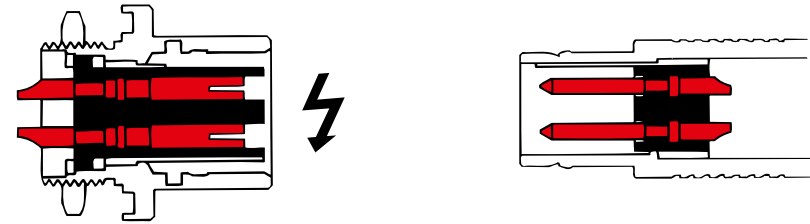
A/Z POLARITY

To protect users from contact with dangerous voltage,
most of Fischer Connectors' products are available in two versions :

STANDARD A POLARITY

The contacts of the receptacle are protected against accidental touch.

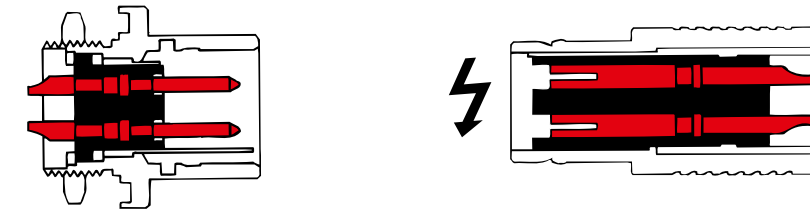
Recommended when voltage is present on the receptacle.



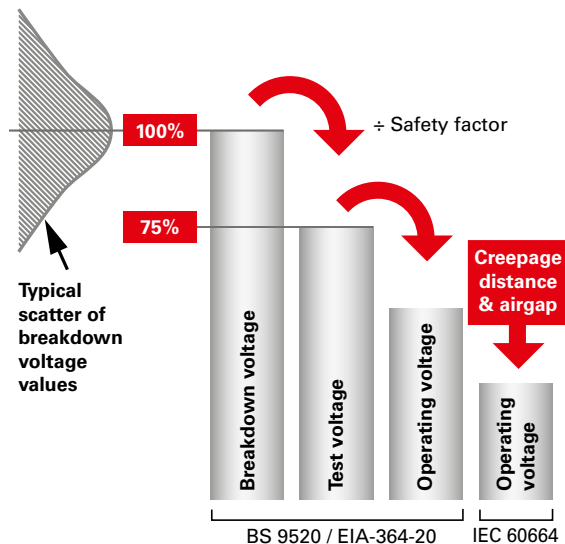
INVERTED Z POLARITY

The contacts of the plug are protected against accidental touch.

Recommended when voltage is present on the plug.



TEST VOLTAGE & OPERATING VOLTAGE



BREAKDOWN VOLTAGE

Maximum voltage difference that can be applied before the occurrence of a disruptive discharge between mutually insulated portions of a connector or between insulated portions and the ground.

TEST VOLTAGE (or withstanding voltage)

Voltage level at which the connector is tested during the qualification test. This value represents the upper physical limit. It is usually set at 75% of breakdown value.

OPERATING VOLTAGE (or rated voltage)

Voltage under which the connector will actually work in the equipment over the normal expected lifetime and in typical environmental conditions.

General recommendation for connectors in common applications

For connectors in common applications, IEC60664 is in particular recommended. This specification uses creepage distance instead of test voltage as a calculation basis for the operating voltage, taking into account the above-mentioned long-term effects. It is similar to German VDE 0110; typical applications are classified in insulation groups depending on their exposure to pollution.

Fischer Connectors recommends the use of IEC60664 in general multipole connector specifications, unless other more specific standards or regulations are applicable to the design. For example, IEC 60601 provides adequate special guidelines for medical devices.

All values given here are valid for mated connectors, provided that termination of connectors has been completed with adequate cable and following correct termination procedures. Other standards recommend a calculation using the test voltage as a basis with the application of a safety factor.

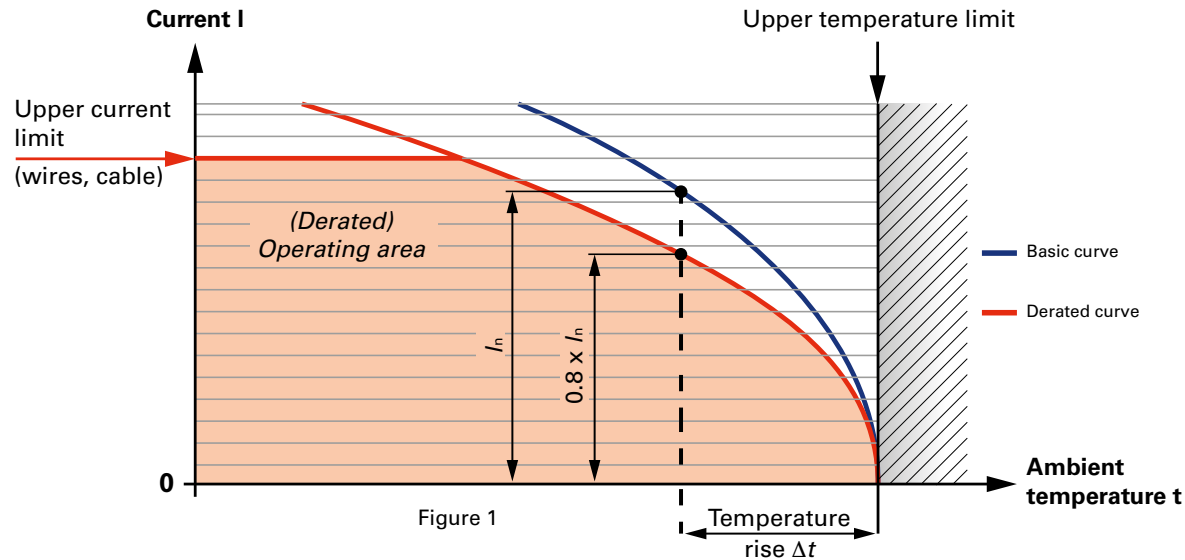
For example, BS 9520 recommends setting the operating voltage at:

- $0.33 \times \text{test voltage}$ for $500\text{V} < \text{test voltage} < 3\text{kV}$
- $0.66 \times \text{test voltage}$ for $\text{test voltage} > 3\text{kV}$

Similar recommendations are provided in EIA-364-20 and former MIL-STD-1344 method 3001.

CURRENT RATING (Maximum permissible current)

DERATING CURVE DERIVED FROM THE BASIC CURVE



The current values listed under “Electrical & contact configurations” were measured in our test laboratory according to IEC 60512-5-2: Current-carrying capacity test, Test 5b: Current-temperature derating. They are the currents that create a temperature rise of 40 °C (unless otherwise specified) within the connectors due to the self-generated heat, and they belong to the basic curve shown in Figure 1.

The maximum permissible current (I) as defined by the above mentioned IEC standard is the basic curve derated by a factor of 0.8 to account for manufacturing tolerances and uncertainty in measurements.

When selecting a connector, attention must be paid to the fact that the temperature rise caused by current must be added to the ambient temperature and that the resulting value shall not exceed the upper temperature limit of the materials, listed under the “Operating temperatures” sections and plotted as a vertical line on the graphs shown in Figure 1.

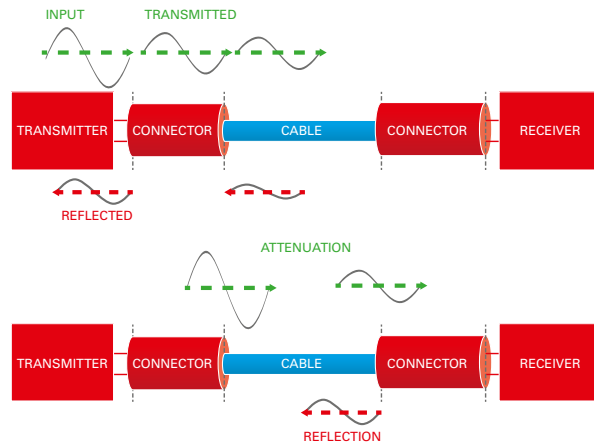
The current-carrying capacity may be further limited by external factors, for example the size of the wire and the cable characteristics. This upper current limit is plotted as a horizontal line on the graphs shown in Figure 1.

The operating area is defined by the surface below the derated curve and limited on top by the upper current limit.

The current values listed under “Electrical & contact configurations” are valid for each contact. For coaxial and triaxial connectors, the current is valid for the center and the outer contact.

HIGH FREQUENCY SIGNAL & DATA TRANSMISSION

DATA TRANSMISSION PRINCIPLES



Challenges in data transmission

When a signal is emitted at the transmitter, it must undergo minimal distortion across the system (transmitter, connectors, cable, receiver) to be properly recovered at the receiver.

Types of signal distortion across the transmission link:

- **Return loss:** When the impedances of two interfaced media do not match (i.e., transmitter/connector, connector/cable, ...), some parts of the signal will reflect back towards the source and be lost. The amount of this loss comes from impedance mismatch and is characterized by the return loss.
- **Insertion loss:** Insertion loss describes the attenuation of the signal along the transmission path. This mainly arises from losses both in the dielectric and the conductors.
- **Crosstalk:** Signals running in close-lying channels are likely to couple to one another. This is described as crosstalk terms.
- **Noise:** Unwanted interferences which could either be external or internal to the system itself might add up to the original signal and cause distortion. For instance, internal interferences can be linked to the noise generated from the transmitter or receiver.

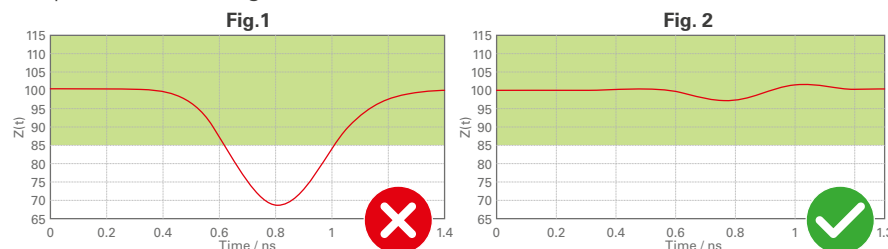
CONNECTOR DESIGN RULES TO OPTIMIZE DATA TRANSMISSION

At a system level, the return loss, insertion loss, crosstalk and noise are critical parameters to ensure high quality data transmission. However, impedance and crosstalk play a more prominent role at the connector level.

Connector with optimized impedance

To optimize impedance matching, the following factors must be considered: Contact diameter, interaxial contact distance, contact form factor, and the dielectric constant of all the components (i.e., type of material).

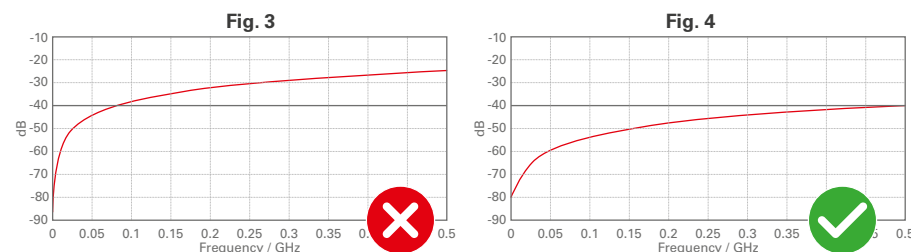
Figures 1 and 2 illustrate the notion of impedance matching in which the green area depicts the tolerated range: Fig. 1 shows a connector with poor impedance-matching, while Fig. 2, shows a connector with optimized impedance matching.



Preventing Crosstalk

To minimize crosstalk, the geometrical distribution of the contacts as well as the contact layout (i.e., signal attribution to specific contacts) are critical.

Figures 3 and 4 illustrate the latter by displaying the crosstalk for two different contact layouts: Fig. 3 shows a connector where the contact layout was not optimized, while Fig. 4 shows a reduced crosstalk noise level which was achieved as a result of an optimized contact layout.



Product specifications

HIGH FREQUENCY SIGNAL & DATA TRANSMISSION

DATA PROTOCOLS

Data protocols provide us the normative values of data transmission parameters (ex. Insertion Loss, Return Loss, Crosstalk, Noise). This provides a means of ensuring that the various components of a system (transmitter, connectors, cable, receiver) work together and allow for an optimized transmission of the data streams.

Two complementary methods can be used to assess the system's capability of transmitting a certain high-speed data transmission protocol in terms of signal quality and transmission speeds: Numerical simulations (connector only) and Vector Network Analyzer (VNA) measurements (i.e., cable and connector).

Typical high-speed data transmission protocols are USB, Ethernet and standard protocol for the simultaneous transmission of audio and video.

Fischer Connectors' skilled technical and support teams can help you build the perfect system by analyzing your specific application and needs. Please contact your local sales representative for more details.



SYMBOL					
PROTOCOL	USB	SPE (SINGLE PAIR ETHERNET)	ETHERNET	STANDARD AUDIO/VIDEO PROTOCOL	
DESCRIPTION	4 wires for USB 2.0 up to 480 Mbit/s 9 wires for USB 3.2 Gen 1 up to 5 Gbit/s 9 wires for USB 3.2 Gen 2 up to 10 Gbit/s	2 wires for SPE up to 1 Gbit/s (1000BASE-T1)	4 wires for Ethernet up to 100 Mbit/s (100BASE-TX) 8 wires for Ethernet up to 5 Gbit/s (5GBASE-T)	19 wires minimum for standard audio/video protocol	
FISCHER SERIES PERFORMANCE UP TO:					
CORE SERIES	USB 3.2 Gen 2	1000BASE-T1	5GBASE-T	18 Gbit/s	4K UHD Up to 60 fps
ULTIMATE SERIES	USB 3.2 Gen 2	1000BASE-T1	1000BASE-T	10.2 Gbit/s	4K UHD Up to 30 fps
MINIMAX SERIES	USB 3.2 Gen 2	1000BASE-T1	5GBASE-T	18 Gbit/s	4K UHD Up to 60 fps

USB 3.2 Gen 1 and Gen 2 Connectors and Cable assemblies are validated following parameters (such as impedance, attenuation, Cross talks, conversion modes) listed in the Universal Serial Bus 3.1 Legacy Connectors and Cable Assemblies Compliance Document (Revision 1.1). Speed rate mentioned is the maximum theoretical speed rate achievable with the according protocol. For further request on the parameters tested and the test reports, please contact Technical Support.

CONTACTS & ACCESSORIES



SOLDER CONTACTS

Most versatile
Pre-installed contacts
Qualified assemblers required

- Can be produced with any type of contact block material and accept a wide range of wire sizes.
- Contacts are pre-installed in the insulator block, and the wires can be terminated with any appropriately sized soldering iron.
- May require operators who are qualified in specialized soldering techniques.



PCB CONTACTS

PCB or Flex circuit mount
Reduced pin diameter
Wave soldering

- Designed to be mounted directly onto a PCB or flex circuit, can be used in wave soldering operations for faster production assembly.
- Preferred for high rates of data transmission due to the low distance to the board that their integration allows. This helps reducing signal perturbations.
- PCB pins are generally used on rear mounted panel connectors.



CRIMP CONTACTS

Selectively annealed area
Special tools required
Limited range of wire sizes

- Each contact has a selectively annealed area which is deformed during assembly by specialized tooling to assure proper termination of the wire to the contact.
- Commonly used for field termination or repair, as no soldering process is required.
- Not available for sealed or hermetic connectors.

CONTACTS & ACCESSORIES



STAMPED CONTACTS

High volume
Automated cable assembly
Disposable applications

- Optimized for very high volume and automated cable assembly.
- Come on specific reels to be accommodated in automated cable assembly machines.
- Mainly used in disposable applications due to their limited number of mating cycles.



FIBER OPTIC BUTT-JOINT CONTACTS

High optical performance
IP67 unmated
UPC & APC polishing

- The FiberOptic termini rely on butt-joint technology commonly used in the telecom industry to ensure ultra-low insertion and return losses.
- A unique sealing feature on the termini allows easy cleaning and device protection even unmated (IP67) without compromising on the alignment once mated.
- Guaranteed, tested and certified optical performance platform using high precision polishing process.
- The alignment sleeve parts are located in a removable mate adapter for easy maintenance, replacement and cleaning.

BEND RELIEFS



OVERMOLDED STRAIGHT & RIGHT ANGLE BEND RELIEF

- Can accommodate a wide range of cable diameters
- Wide choice of colors and materials (e.g. polyurethane, silicon, etc.)
- Best protection to improve cable flex life



CABLE BEND RELIEF

Tool-free terminations for field installations:

- High quality and improved protection
- Wide range of colors for easy cable identification
- Can accommodate a wide range of cable diameters

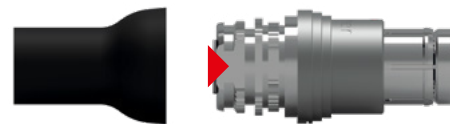
PROTECTIVE SLEEVE



Improves mechanical protection on the whole interface:

- Prevents contamination in highly dusty environments
- Protects both plug and receptacle
- Enhances sealing

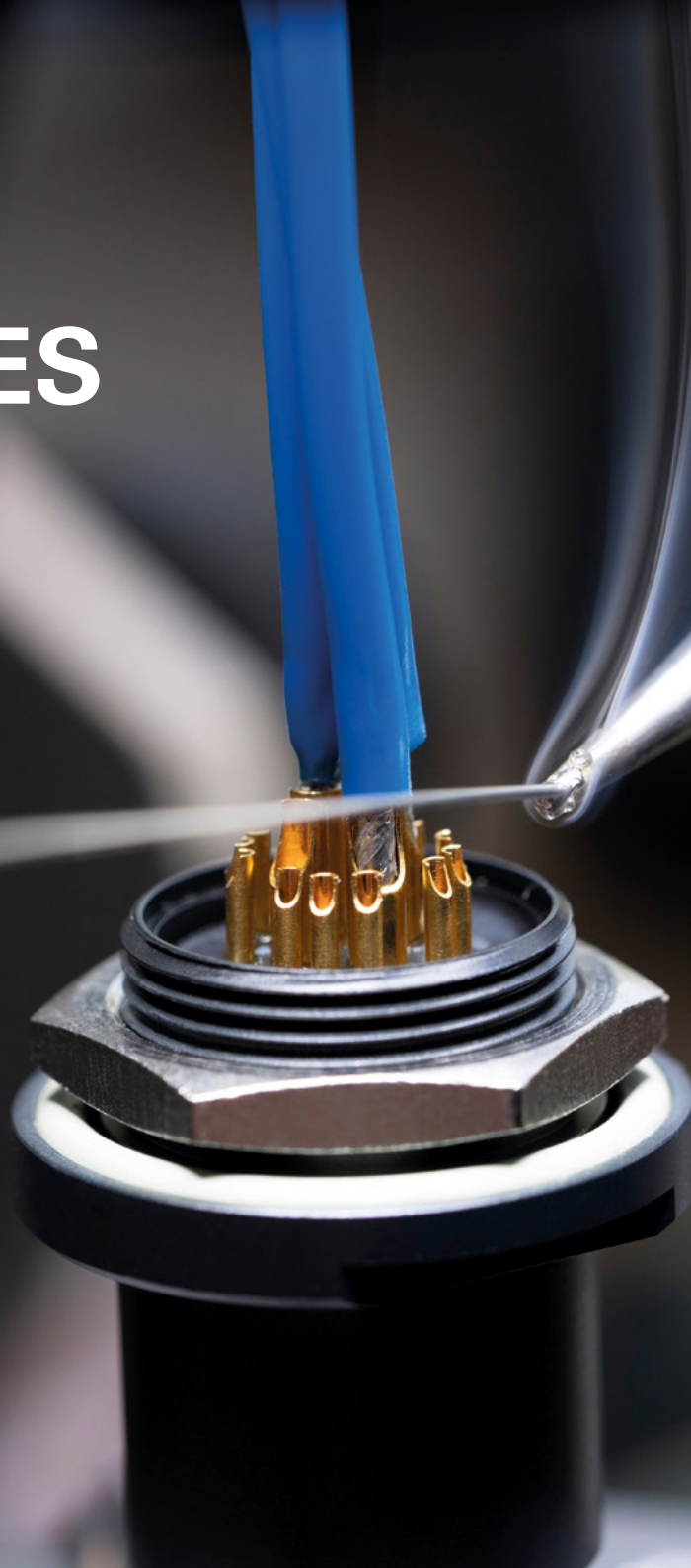
HEAT SHRINKING TUBE



Allows submersion with adhesive versions:

- Ideal for quick prototyping
- Can accommodate a wide range of cable diameters and multiple cable output
- Protects exposed wires

CABLE ASSEMBLIES



KEY FEATURES



Fischer Connectors provides system designers with everything they need to put together the right interconnect solution for a wide range of applications.

Thanks to the most modern ISO certified cable assembly facilities in Europe, North America and Asia Pacific, our engineering and manufacturing experts ensure short lead times to meet your project deadline.

VERTICAL INTEGRATION

- Connectors
- Components
- Cables

EXPERTISE

- Design
- Manufacturing
- Testing

RELIABILITY

- Sealing
- Sterilization
- Data transmission

Cable assemblies

INTEGRATED CONNECTIVITY SOLUTIONS FOR EVERY PROJECT

Our engineers work closely with your team to find the right solution for the most demanding applications by integrating precision connectors, components, parts, and engineered cables.

Fischer Connectors' skilled technical and support teams help you build the perfect cable assembly for your unique application, providing advice through design, prototype, assembly, testing, manufacturing, installation, and beyond.

LARGE RANGE OF APPLICATIONS:

- High-performance rugged and submersible cable assemblies for the defense and marine markets
- Silicone overmolded solution for high heat protection and maximum flexibility in the medical industry
- High-speed transmission of electrical, power, and optical signals
- Custom and application-specific cable harnesses

MEDICAL



Integration in medical devices

SILICONE



High temperature applications

DEFENSE



Communications

- Overmolded cable assemblies, including thermoplastic & silicone
- Wiring harness assemblies
- Rugged & submersible cable solutions
- Third-party connector integration
- Right-angle overmolds
- Custom overmolds with multi-cable exits
- Potting or heat shrink
- Automated strip and crimp
- Colored overmolding
- Low cost and disposable options

AT YOUR SERVICE, WHEREVER YOU ARE

GLOBAL FOOTPRINT

With our worldwide connectors and cable assembly network, located in Europe, North America and Asia Pacific, we provide our customers with quick turnarounds around the globe.

STREAMLINING YOUR SUPPLY CHAIN

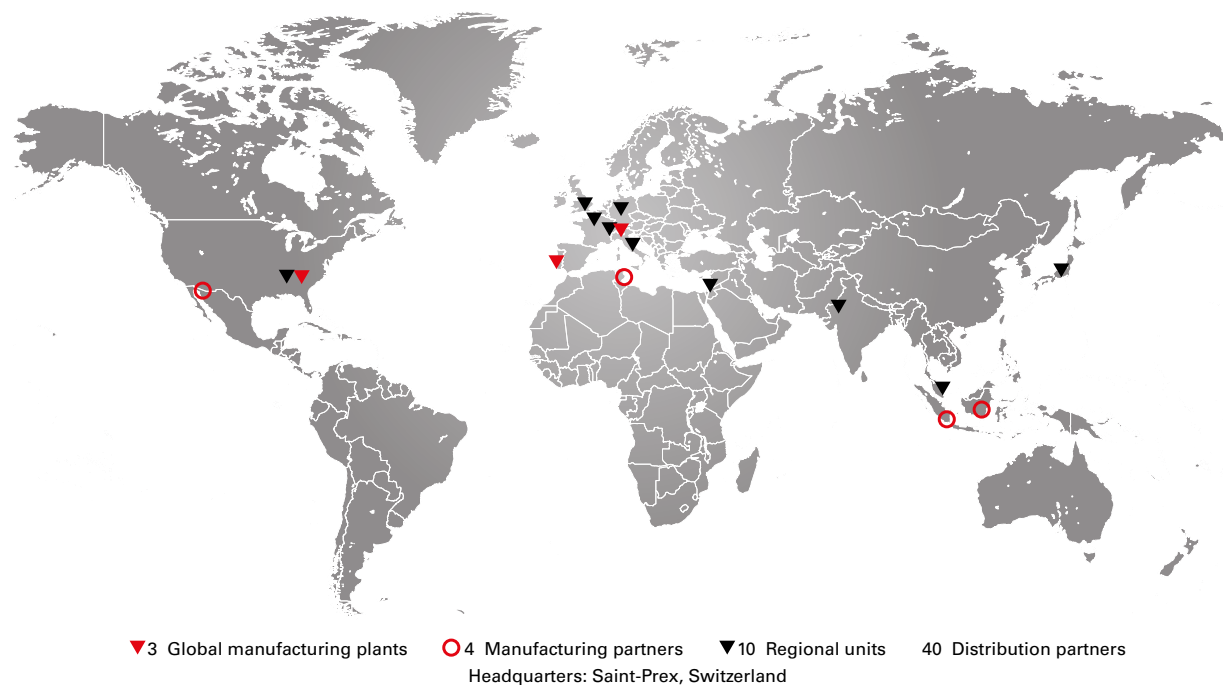
By purchasing cable assemblies, connectors and manufacturing from one place, you deal with one vendor, pay one bill, and reduce the time and the risk it takes to coordinate your project.

ALL THE RIGHT ANGLES

Overmolding, including right-angle and custom connections, silicone and low friction cables, are all part of the business. We have overmolding machines for both polyurethane and silicone.

COMPETITIVE PRICING

Companies that use Fischer Connectors for both their connectors and assembly solutions can see significant savings over the cost of handling each vendor separately.



TOP QUALITY

We build cable assemblies to the same rigorous quality standards as we build our connectors. Whether you're looking for a simple or complex assembly, Fischer Connectors is able to deliver exactly what you need, when you need it.

Cable assemblies

CUSTOM CABLE ASSEMBLIES

Fischer Connectors has helped hundreds of customers find their unique cable assembly solution that fulfills technical, quality and cost requirements.

From prototyping, design validation, testing and delivery, we support your project from the beginning to the end.

Our team of experts is at your service to recommend the best solution for your connectivity challenges and turn them into a success story.



A WIDE RANGE OF CUSTOM OVERMOLDING



Thermoplastic overmolds for the Fischer Core Series, Fischer MiniMax™ Series and Fischer FiberOptic Series



Right-angle thermoplastic overmolds for the Fischer Core Series and Fischer UltiMate™ Series



Silicone overmolds with low friction coatings for medical and high temperature applications



Thermoplastic overmolds for the Fischer UltiMate™ Series



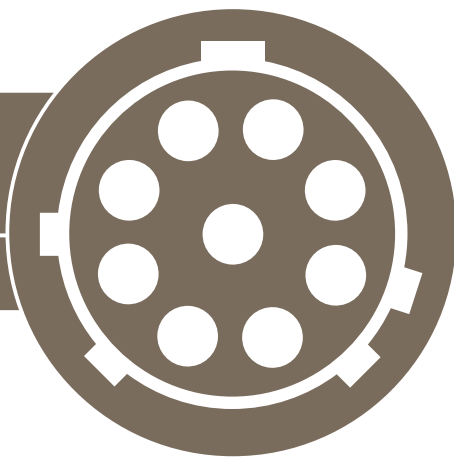
Thermoplastic overmolds with custom cable breakouts



Custom thermoplastic overmolds for multi-cable exits

H

CHAPTER



FISCHER ULTIMATE™ SERIES

RUGGED | COMPACT | LIGHTWEIGHT

KEY FEATURES

- IP68 2m/24h / Hermetic
- 360° EMC shielding
- High corrosion resistance
- Up to 10,000 mating cycles

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ULTIMATE



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RECEPTACLES



CABLE MOUNTED

- Body styles (UR50) H-8
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PANEL REAR MOUNTED

- Body styles (UR01; UR02; UR04) H-10
- Technical dimensions H-11



PANEL FRONT MOUNTED

- Body styles (UR03) H-10
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FOR ULTIMATE

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This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

AVAILABLE SIZES

CONNECTOR SIZE
VERSUS
CABLE DIAMETER

Size	Min cable ø	Max cable ø	Number of contacts
07	1.9	4.8	2-10
08	2.5	5.2	2-9
11	3.9	7.8	8-19
13	6.9	9.8	5-27
15	6.9	11.3	2-27
18	6.9	14.8	42

Min cable ø compatible with bend relief (accessory).

Images of available sizes are on 1:1 scale when printed full size on A4 paper.

PLUGS

CABLE MOUNTED



Body style		UP01	UP02	References to detailed information
Protection	Sealed up to IP68	●	●	Sealing categories, page A-6
	Hermetic			
Locking system	Push-pull	●		Locking systems, page A-5
	Quick-release	●		
	RLS (Ratchet Locking System)		●	
Termination	Crimp contact			Electrical & contact configurations, pages H-13 to H-18
	Solder contact	●	●	
Housing material	Brass	●		Part numbering, page H-26
	Aluminum	●	●	
Housing color	Anthracite	●		Part numbering, page H-26
	Black		●	
Design	Shortened body	●	●	Body styles, chapter H
	Straight	●	●	
	Right-angle	●		
Cabling	Cable clamp sets			
	Overmoldable	●	●	
	Heat shrinkable	●	●	
Accessories	Cable bend reliefs	●	●	Accessories, page H-27
	Protective sleeves			
	Sealing caps	●	●	
Size	07	●		Technical dimensions, page H-5 For more information visit our website www.fischerconnectors.com/technical
	08	●		
	11	●		
	13	●		
	15	●	●	
	18	●		

Technical dimensions

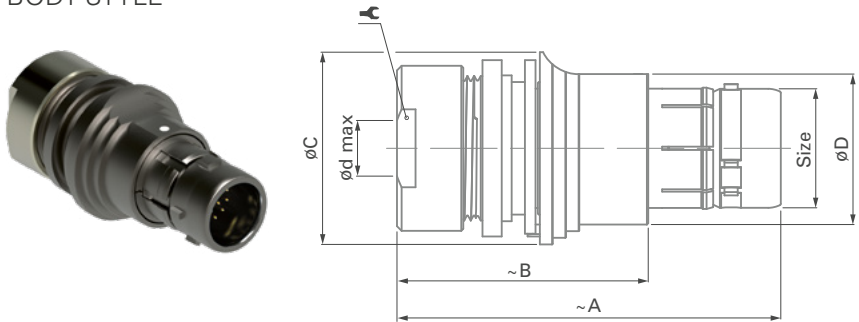
FISCHER **ULTIMATE™** SERIES

PLUGS

CABLE MOUNTED

UP01

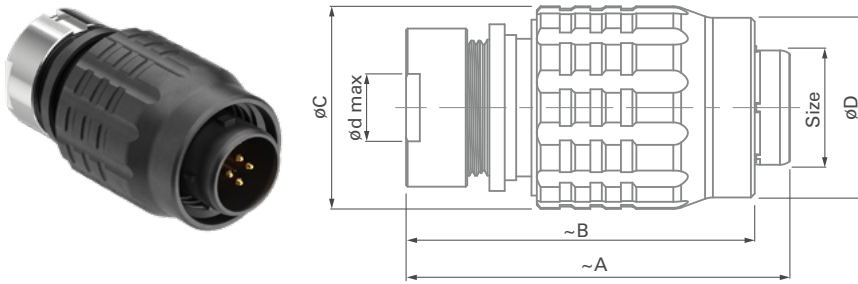
BODY STYLE



Size	A	B	øC	øD	ød max		Torque
07	28.0	18.0	12.0	9.0	4.8	8	1.5 Nm
08	39.0	25.0	15.0	10.5	5.2	10	2.5 Nm
11	39.5	26.0	18.5	13.7	7.8	14	3.0 Nm
13	50.0	34.0	21.7	16.0	9.8	17	3.5 Nm
15	50.2	33.6	23.7	18.0	11.3	19	4.0 Nm
18	58.0	38.0	29.0	22.7	14.8	22	6.0 Nm

UP02

BODY STYLE



Size	A	B	øC	øD	ød max		Torque
15 RLS (Ratchet Locking System)	50.0	45.5	26.5	23.5	11.3	19	4.0 Nm

PLUGS

PANEL FRONT MOUNTED



Body style		UP50	References to detailed information
Protection	Sealed up to IP68	●	Sealing categories, page A-6
	Hermetic		
Locking system	Friction	●	Locking systems, page A-5
	Push-pull		
	Quick-release		
	Lanyard		
	Tamperproof		
Termination	Crimp contact		Electrical & contact configurations, pages H-13 and H-15
	Solder contact	●	
Housing material	Brass	●	Part numbering, page H-26
	Aluminum	●	
Housing color	Anthracite	●	Part numbering, page H-26
Design	Shortened body		Body styles, chapter H
	Straight	●	
	Right-angle		
Assembly	Front-mounting	●	
	Rear-mounting		
Accessories	Cable bend reliefs		Accessories, page H-27
	Protective sleeves		
	Sealing caps	●	
Size	07	●	Technical dimensions, page H-7 For more information visit our website www.fischerconnectors.com/technical
	11	●	

Technical dimensions

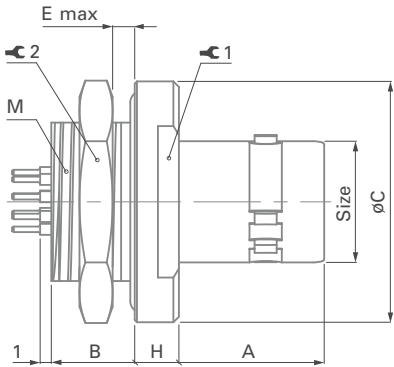
FISCHER **ULTIMATE™** SERIES

PLUGS

PANEL FRONT MOUNTED

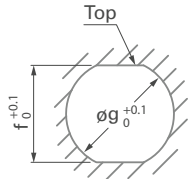
UP50

BODY STYLE



Size	A	B	øC	E max	H	M	1	2	Torque
07	10.0	5.2	13.0	2.5	3.0	M9x0.5	9	11	1.3 Nm
11	13.2	7.6	21.8	4.5	4.0	M16x1	17	19	4.5 Nm

Size	f	øg
07	8.0	9.1
11	14.5	16.1



PANEL CUT-OUT

All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

CABLE MOUNTED



Body style		UR50	References to detailed information
Protection	Sealed up to IP68	●	Sealing categories, page A-6
	Hermetic		
Termination	Crimp contact	●	Electrical & contact configurations, pages H-13 to H-16
	Solder contact	●	
Housing material	Brass	●	Part numbering, page H-26
	Aluminum	●	
Housing color	Anthracite	●	Part numbering, page H-26
Design	Shortened body		Body styles, chapter H
	Straight	●	
	Right-angle	●	
Cabling	Cable clamp sets		
	Overmoldable	●	
	Heat shrinkable	●	
Accessories	Cable bend reliefs	●	Accessories, page H-27
	Protective sleeves		
	Sealing caps	●	
Size	07	●	Technical dimensions, page H-9 For more information visit our website www.fischerconnectors.com/technical
	08	●	
	11	●	
	13	●	

Technical dimensions

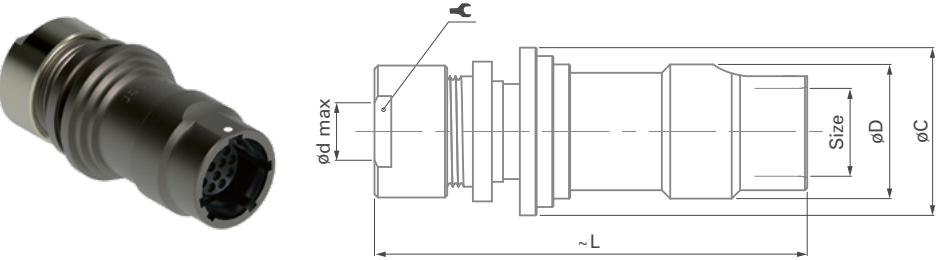
FISCHER **ULTIMATE™** SERIES

RECEPTACLES

CABLE MOUNTED

UR50

BODY STYLE



Size	øC	øD	ød max	L		Torque
07	12.0	10.0	4.8	27	8	1.5 Nm
08	15.0	12.0	5.2	39	10	2.5 Nm
11	18.5	15.5	7.8	39	14	3.0 Nm
13	21.7	17.9	9.8	50	17	3.5 Nm

All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PANEL MOUNTED



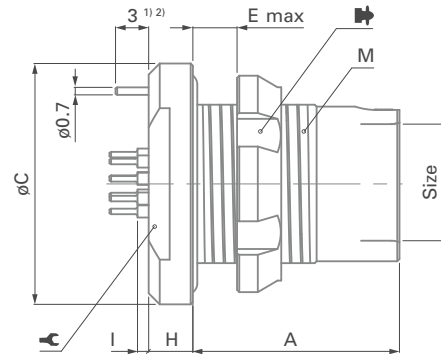
Body style		UR01	UR02	UR03	UR04	References to detailed information
Protection	Sealed up to IP68	●	●	●	●	Sealing categories, page A-6
	Hermetic	●	●	●	●	
Termination	Crimp contact					Electrical & contact configurations, page H-13 to H-18
	Solder contact	●	●	●	●	
	PCB contact	●	●	●	●	
Housing material	Brass	●	●	●		Part numbering, page H-26
	Aluminum	●	●	●	●	
Housing color	Anthracite	●	●	●		Part numbering, page H-26
	Black				●	
Design	Right-angle					Body styles, chapter H
	Flush		●			
	Front-projecting	●		●	●	
	Bulkhead feedthrough					
Assembly	Front-mounting			●		
	Rear-mounting	●	●		●	
Accessories	Sealing caps	●	●	●	●	Accessories, page H-27
	Spacers					
	Color-coded washers					
	Grounding washers					
	Locking washers					
Size	07	●	●	●		Technical dimensions, page H-11 and H-12 For more information visit our website www.fischerconnectors.com/technical
	08	●	●	●		
	11	●	●	●		
	13	●	●			
	15	●	●		●	
	18	●	●			

RECEPTACLES

PANEL REAR MOUNTED*

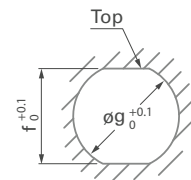
UR01

BODY STYLE



Size	A	øC	E max	H	I	M	⌀	⌀	Torque
07	14.2	14.0	4.5	3.0	0.7	M10x0.5	11	TC00.007	1.5 Nm
08	18.7	16.9	5.0	4.0	1.0	M12x1	15	TF00.001	2.5 Nm
11	18.7	21.8	7.0	4.0	1.0	M16x1	17	TK00.002	4.5 Nm
13	22.5	23.8	5.5	4.0	1.0	M18x1	20	TP00.011	6.0 Nm
15	27.7	25.8	9.0	4.0	1.0	M20x1	20	TP00.013	6.5 Nm
18	29.3	31.8	7.5	4.0	1.0	M25x1	27	TQ00.005	10.0 Nm

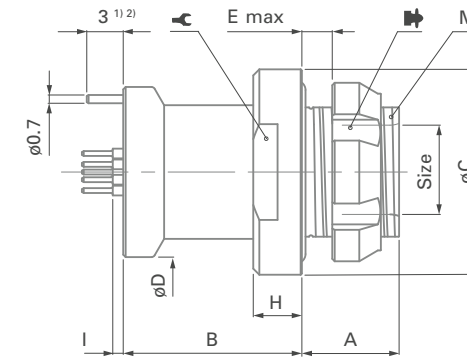
Size	f	øg
07	9.2	10.1
08	10.9	12.1
11	14.5	16.1
13	16.5	18.1
15	18.5	20.1
18	23.2	25.1



PANEL CUT-OUT

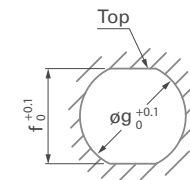
UR02

BODY STYLE



Size	A	B	øC	øD	E max	H	I	M	⌀	⌀	Torque
07	6.5	10.7	14.0	13.0	3.5	3.5	0.7	M9x0.5	11	TC00.000	1.3 Nm
08	8.0	14.7	16.9	14.0	4.0	4.0	1.0	M12x1	15	TF00.001	2.5 Nm
11	8.0	14.7	21.8	18.8	4.0	4.0	1.0	M16x1	17	TK00.002	4.5 Nm
13	10.5	16.0	23.8	20.0	5.0	4.0	1.0	M18x1	20	TP00.011	6.0 Nm
15	10.5	21.2	25.8	22.0	5.0	4.0	1.0	M20x1	20	TP00.013	6.5 Nm
18	11.0	22.3	31.8	26.0	5.0	4.0	1.0	M25x1	27	TQ00.005	10.0 Nm

Size	f	øg
07	8.0	9.1
08	10.9	12.1
11	14.5	16.1
13	16.5	18.1
15	18.5	20.1
18	23.2	25.1



PANEL CUT-OUT

* Standard version with PCB contacts and grounding pin. For solder contact version, a special solder ground contact pin is included for AWG22[7/30].

¹⁾ Solder & PCB ground pins are always equal or larger than the largest contact of corresponding contact bloc layout (except size 13 config. 203 AWG12 [7/20])

²⁾ 3.6 mm for size 15

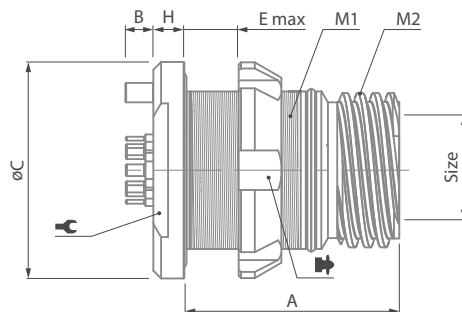
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PANEL REAR MOUNTED

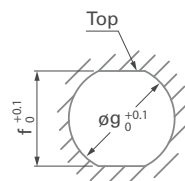
UR04

BODY STYLE



Size	A	B	ØC	E max	H	M1	M2	⌚	➡	Torque
15	27.7	3.6	25.8	9.0	4.0	M22x1	TR20x6 (P2)	22	TR00.004	8.0 Nm

Size	f	øg
15	20.5	22.1

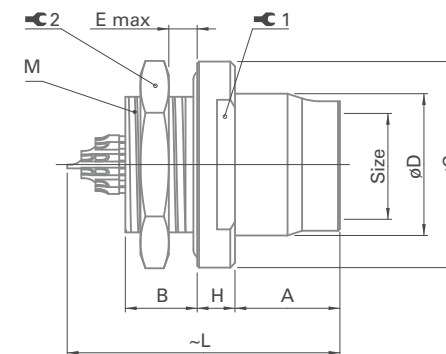


PANEL CUT-OUT

PANEL FRONT MOUNTED*

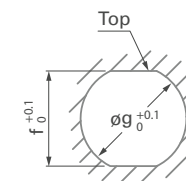
UR03

BODY STYLE



Size	A	B	ØC	ØD	E max	H	L	M	⌚ 1	⌚ 2	Torque
07	7.7	6.4	14.0	10.0	3.5	2.5	20	M9x0.5	11	11	1.3 Nm
08	11.7	7.0	16.9	11.5	4.0	4.0	27	M12x1	15	14	2.5 Nm
11	11.1	7.6	21.8	15.0	4.6	4.0	29	M16x1	17	19	4.5 Nm

Size	f	øg
07	8.0	9.1
08	10.9	12.1
11	14.5	16.1



PANEL CUT-OUT

* Standard version with solder contacts.

SIZE 07

Size	Pin layout	Layout reference	Number of contacts	Contact diameter [mm]	Wire size ³⁾		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position					
											IEC 60512-4-1 Test 4a					
					Solder contacts ¹⁾	Crimp contacts ²⁾	Pin ø	Ground pin ø			IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
													Contact to body	Contact to contact	Contact to body	Contact to contact
07		002	2	0.9	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.83 mm ⁶⁾ min ø0.48 mm AWG22-26	0.63	0.7	9.2	≤ 250	1.3	1.7	1.8	2.4		
		0S2	2	0.5	max ø0.88 mm ⁶⁾ AWG21 [1] AWG22 [7/30]	-	0.4	0.7	7.0	≤ 250	1.2	1.8	1.8	3.4		
		003	3	0.9	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.63	0.7	8.2	≤ 250	1.3	1.3	1.8	1.6		
		004	4	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	5.5	≤ 200	1.2	1.2	1.7	1.8		
		005	5	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	5.2	≤ 160	0.8	1.0	1.3	1.8		
		007	7	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	max ø0.43 mm min ø0.20 mm AWG28-32	0.40	0.7	4.0	≤ 160	0.8	1.0	1.3	1.8		
		009	9	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	≤ 160	0.8	1.1	1.2	1.8		
		010	10	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	≤ 160	0.8	0.9	1.2	1.3		

¹⁾ Stranding values are in brackets.

²⁾ See dedicated crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies.

In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾ Standard polarity only.

⁷⁾ Layout dedicated to SPE data protocol 1 Gbit/s

All dimensions and images shown are in millimeters and are for reference only.

SIZE 08

Size	Pin layout	Layout reference	Number of contacts	Contact diameter <i>[mm]</i>	Wire size ³⁾		PCB contacts <i>[mm]</i>		Current rating <i>[A]</i>	Rated voltage r.m.s <i>[V]</i>	Test voltage <i>[kV]</i> in mated position			
							IEC 60512-4-1 Test 4a							
					Solder contacts ¹⁾	Crimp contacts ²⁾	Pin Ø	Ground pin Ø	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
08		002	2	0.9	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.70	0.7	9.2	≤ 250	1.3	1.7	1.8	2.4
		003	3	0.9	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.70	0.7	8.2	≤ 250	1.3	1.3	1.8	1.6
		004	4	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	max Ø0.62 mm min Ø0.38 mm AWG24-28	0.50	0.7	5.5	≤ 200	1.2	1.2	1.7	1.8
		005	5	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	max Ø0.62 mm min Ø0.38 mm AWG24-28	0.50	0.7	5.2	≤ 160	0.8	1.0	1.3	1.8
		007	7	0.5	max Ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	4.0	≤ 160	0.8	1.0	1.3	1.8
		009	9	0.5	max Ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	≤ 160	0.8	1.1	1.2	1.8

¹⁾ Stranding values are in brackets.

²⁾ See dedicated crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies.

In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

SIZE 11

Size	Pin layout	Layout reference	Number of contacts	Contact diameter <i>[mm]</i>	Wire size ³⁾		PCB contacts <i>[mm]</i>		Current rating <i>[A]</i>	Rated voltage r.m.s <i>[V]</i>	Test voltage <i>[kV]</i> in mated position			
							IEC 60512-4-1 Test 4a							
					Solder contacts ¹⁾	Crimp contacts ²⁾	Pin Ø	Ground pin Ø	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
11		008	8	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	max Ø0.62 mm min Ø0.38 mm AWG24-28	0.50	0.7	4.2	≤ 250	1.7	1.8	3.1	2.6
	 USB 3.2	207	2	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.40	0.7	9.0	≤ 250	1.3	1.6	1.9	2.2
			6	0.5	max Ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40		1.0	≤ 250	1.2	1.2	1.7	1.8
			1	0.5	max Ø0.63 mm AWG24 [1] AWG26 [19/38]	-	0.40		1.0	≤ 250	1.2	1.2	1.7	1.8
			012	12	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	^{6) 7)} max Ø0.62 mm min Ø0.38 mm AWG24-28		0.50	0.7	4.2	≤ 250	1.6	1.6
		016	16	0.5	max Ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40 ₆₎	0.7	2.7	≤ 250	1.2	0.9	2.0	1.5
		019	19	0.5	max Ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40 ₆₎	0.7	2.5	≤ 250	1.2	0.9	2.0	1.5

¹⁾ Stranding values are in brackets.

²⁾ See dedicated wire gauge crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies.

In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾ Not valid for UP50.

⁷⁾ UR0x: standard polarity only.

⁸⁾ Layout dedicated to protocol USB 3.2 Gen 2 (10 Gbit/s)

All dimensions and images shown are in millimeters and are for reference only.

SIZE 13

Size	Pin layout	Layout reference	Number of contacts	Contact diameter ^[mm]	Wire size ³⁾		PCB contacts ^[mm]		Current rating ^[A]	Rated voltage r.m.s ^[V]	Test voltage ^[kV] in mated position			
											IEC 60512-4-1 Test 4a			
					Solder contacts ¹⁾	Crimp contacts ²⁾	Pin Ø	Ground pin Ø	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
13		203 ⁹⁾	2 ⁸⁾	2.3	max Ø3.28 mm AWG9 [19/22]	-	1.8	1.8	26	≤ 320	2.2	1.7	3.7	2.4
			3	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5		1	≤ 320	2.1		3.7	
		303	3 ⁸⁾	1.6	max Ø1.86 mm AWG13 [1] AWG14 [7/22]	-	1.5	1.5	16	≤ 320	2.6	1.6	3.6	2.4
			3	0.7	max Ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5		1	≤ 320	2.6		3.6	
		027	27	0.5	⁶⁾ max Ø0.43 mm AWG26 [1] AWG28 [19/40]	⁷⁾ max Ø0.43 mm min Ø0.20 mm AWG28-32	0.40 ⁶⁾	0.7	2.0	≤ 200	1.2	0.5	1.8	0.5

¹⁾ Stranding values are in brackets.

²⁾ See dedicated wire gauge crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general purpose guideline where no other electrical safety standard applies.
In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾ UR0x: standard polarity only.

⁷⁾ Only valid for UP01.

⁸⁾ Contact block with male contacts comes standard with advanced power contacts.

⁹⁾ UR0x: only available in "V" (Vacuum sealing) version, not in "W" (Water sealing) nor in "N" (Non sealing) versions.

SIZE 15

Size	Pin layout	Layout reference	Number of contacts	Contact diameter [mm]	Wire size ²⁾		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
											IEC 60512-4-1 Test 4a			
					Solder contacts ¹⁾	Crimp contacts ²⁾	Pin ø	Ground pin ø	IEC 60512-5-2-5b ³⁾	IEC 60664-1 ⁴⁾	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
15		002 ⁹⁾	2	3.0	max ø3.13 mm AWG9 [1] AWG10 [105/30]	-	2.5	2.5	30	≤ 400	1.2	1.6	2.3	3.0
		004 ⁹⁾	4	2.0	max ø2.03 mm AWG13 [1] AWG14 [7/22]	-	1.5	2.5	20	≤ 320	1.8	1.8	2.6	2.6
		204H ⁸⁾	4 ⁵⁾	1.3	max ø1.18 mm AWG17 [1] AWG18 [16/30]	-	-	-	12	≤ 320	1.5	2.3	2.8	3.5
			2 ⁵⁾	coax	-	7)	-	-	7)	7)	7)	-	7)	-
		008	8	1.3	max ø1.18 mm AWG17 [1] AWG18 [16/30]	-	1.0	1.0	10	≤ 320	1.7	2.0	2.5	2.8
		412 ⁶⁾	4	1.6	max ø1.86 mm AWG13 [1] AWG14 [7/22]	-	1.5	2.5	14	≤ 250	1.6	1.3	2.8	2.1
			12	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5		1.0		1.0	1.2	1.5	2.0
		027	27	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5	1.0	3.0	≤ 250	1.2	1.5	1.5	2.0

¹⁾ Stranding values are in brackets.

²⁾ For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

³⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁴⁾ Recommended operating voltage at sea level. This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁵⁾ Standard polarity only.

⁶⁾ Contacts dia. 1.6 are positioned to make contact first and break last.

⁷⁾ Please refer to <https://fischerconnectors.com/en/download-center/> for technical specification of coax insert.

⁸⁾ Max 500 mating cycles due to coax insert characteristics. Coax contacts not included, must be purchased separately.

⁹⁾ UR0x: only available in "V" (Vacuum sealing) version, not in "W" (Water sealing) nor in "N" (Non sealing) versions.

All dimensions and images shown are in millimeters and are for reference only.

SIZE 18

Size	Pin layout	Layout reference	Number of contacts	Contact diameter [mm]	Wire size ³⁾		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
											IEC 60512-4-1 Test 4a			
					Solder contacts ¹⁾	Crimp contacts ²⁾	Pin Ø	Ground pin Ø	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
18		042	42 ⁶⁾	0.7	-	max Ø0.62 mm min Ø0.38 mm AWG24-28	0.50	0.70	3.0	≤ 250	1.5	1.5	2.4	2.5

¹⁾ Stranding values are in brackets.

²⁾ See dedicated wire gauge crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies.

In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾ Standard polarity only.

MECHANICAL CODING

PLUGS	Size	Code 1	Code 2	Code 3	Code 4
	07				
	08				
	11				
	13				
	15				
	18				
Visual coding		●	▼	■	×

RECEPTACLES	Size	Code 1	Code 2	Code 3	Code 4
	07				
	08				
	11				
	13				
	15				
	18				
Visual coding		●	▼	■	×

All dimensions and images shown are in millimeters and are for reference only.

POLARITY

BODY STYLES

UP01

UP50



POLARITY

Standard polarity: male contacts on plug / female contacts on receptacle

Inverted polarity: female contacts on plug / male contacts on receptacle.

WARNING: for high-current applications, make sure to choose the correct polarity (female contacts on device that is supplying the power).

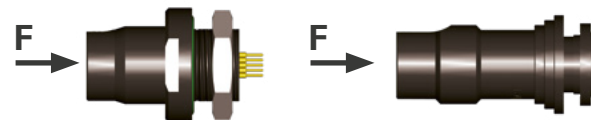
UR01

UR02



UR03

UR50



PCB / PIN LAYOUT

View from F¹⁾

Size	Polarity	Number of contacts (layout reference)							
		2 (002)	2 (0S2)	3 (003)	4 (004)	5 (005)	7 (007)	9 (009)	10 (010)
07	Standard								
	Inverted								

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

^{a)} For optional ground pin.

PCB / PIN LAYOUT

View from F¹⁾

Size	Polarity	Number of contacts (layout reference)					
		2 (002)	3 (003)	4 (004)	5 (005)	7 (007)	9 (009)
08	Standard						
	Inverted						

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

^{a)} For optional ground pin.

PCB / PIN LAYOUT

View from F¹⁾

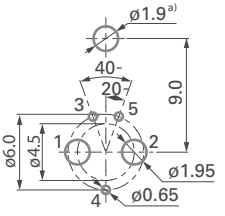
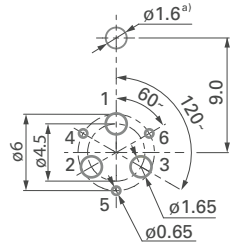
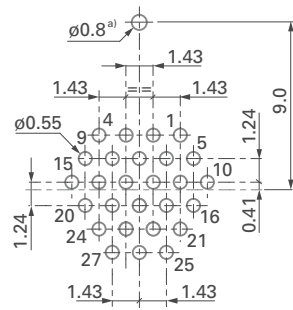
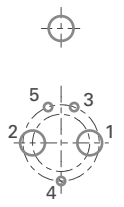
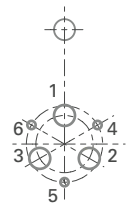
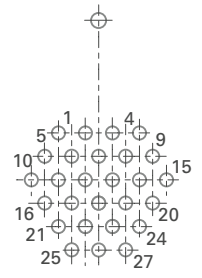
Size	Polarity	Number of contacts (layout reference)				
		8 (008)	9 (207)	12 (012)	16 (016)	19 (019)
11	Standard					
	Inverted		-			

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

^{a)} For optional ground pin.

PCB / PIN LAYOUT

View from F¹⁾

Size	Polarity	Number of contacts (layout reference)		
		2+3 (203)	3+3 (303)	27 (027)
13	Standard			
	Inverted			

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

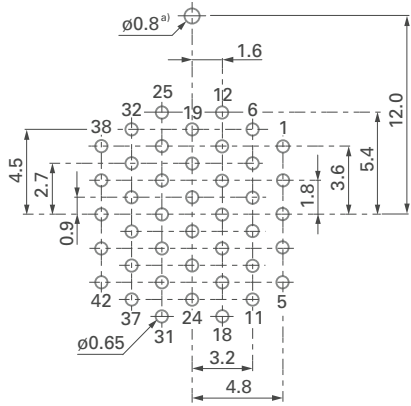
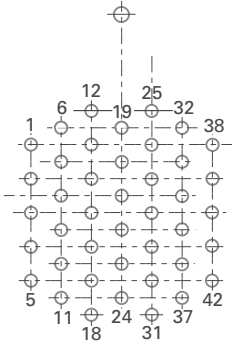
^{a)} For optional ground pin.

View from F¹⁾ 2)

H-24 Technical Specifications

PCB / PIN LAYOUT

View from F¹⁾

Size	Polarity	Number of contacts (layout reference)
		42 (042)
18	Standard	
	Inverted	

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

^{a)} For optional ground pin.

PLUGS & RECEPTACLES

Example:

Connector Design			
UP01		L	07
UR01	W		11

Contact Block		
M	010	S
F	012	S

Housing	
BK	1
BK	2

Standard options			
Z	2	Z	B
E	1	A	A

Body style

UltiMate Plug = UP

- **UP01** = Cable mounted
- **UP02** = Cable mounted (RLS Ratchet Locking System)
- **UP50** = Panel mounted

UltiMate Receptacle = UR

- **UR01** = Panel rear mounted low profile
- **UR02** = Panel rear mounted
- **UR03** = Panel front mounted low profile
- **UR04** = Panel rear mounted low profile (RLS Ratchet Locking System)
- **UR50** = Cable mounted

Sealing level

Panel mounted:

- **V** = Vacuum sealing ¹⁾
- **W** (IP68) = Water sealing
- **N** = Non sealing ²⁾

Cable mounted:

- Not applicable = Nothing

Locking system

Cable mounted plug:

- **L** = Push-pull locking
- **Q** = Quick release
- **R** = RLS (Ratchet Locking System) ³⁾

Cable mounted receptacle:

- **Z** = Not applicable

Panel mounted:

- No locking = Nothing

Connector size

- **07** = Size 07
- **08** = Size 08
- **11** = Size 11
- **13** = Size 13
- **15** = Size 15
- **18** = Size 18

Housing Material

- **A** = ALUMINUM
- **B** = BRASS (Standard)

Grounding

Panel mounted:

- **A** = Grounding pin (for UR01/UR02/UR04))
- **N** = None (for UR03/UP50)

Cable mounted:

- **Z** = Not applicable

Insulator Material

- **1** = PBT
- **2** = PEEK

O-ring material

Receptacle:

- O-ring at plug interface
- **E** = FVMQ (Fluorosilicone)

Plug:

- **Z** = Not applicable

Keying code

- **Code 1** = ●
- **Code 2** = ▼
- **Code 3** = ■
- **Code 4** = ✕
- Standard keying = Code 1
- Standard guide mark = White

Housing color

- **BK** = Standard, nickel anthracite
- **BB** = Nickel black (RLS Ratchet Locking System))

Contact Type

- **S** = Solder
- **P** = PCB
- **C** = Crimp ⁵⁾
- **H** = Hybrid

Layout references

- **Size 07:** 002, 0S2, 003, 004, 005, 007, 009, 010
- **Size 08:** 002, 003, 004, 005, 007, 009
- **Size 11:** 008, 207, 012, 016, 019
- **Size 13:** 203, 303, 027
- **Size 15:** 002, 004, 204 ⁴⁾, 008, 412, 027
- **Size 18:** 042

Polarity of contacts

- **M** = Male contacts
- **F** = Female contacts
- Standard polarity: Male contacts in plug, female contacts in receptacle

¹⁾ Reference 203 in size 13 & references 002, 004 in size 15 are only available in "V" version for panel receptacles.

²⁾ Only option for pin layout 204H.

³⁾ Only with body styles UP02 and UR04.

⁴⁾ Coax contacts must be ordered separately. Please refer to www.fischerconnectors.com/technical for Coax inserts details.

⁵⁾ On request for panel receptacles

BEND RELIEF

Top performance, no hassle

- No tool required: 5 steps to assemble
- Clean cut: perfectly adjust the bend relief to your cable diameter with a simple blade

Long lasting

- Resists 10,000 flex cycles at a 90° angle
- Operating temperature -55 °C to +135 °C
- UV resistant

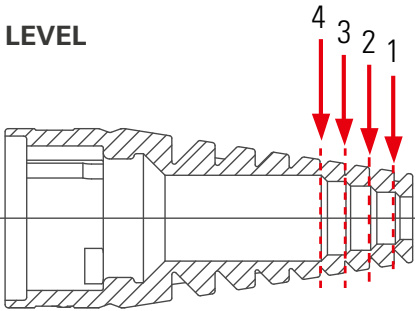


Standard color is black (BK)
Also available in grey (GY), blue (BL), yellow (YL), green (GN), violet (VT) upon request.

Please contact your Fischer Connectors sales representative.

CUTTING DIAMETERS

Size	Uncut	Level 1	Level 2	Level 3	Level 4	Part Number
07	ø1.9	ø2.9	ø3.9	ø4.9	-	UB07 A1BK
08	ø2.5	ø3.7	ø5.7	ø7.5	-	UB08 A1BK
11	ø3.9	ø5.4	ø6.9	ø8.9	-	UB11 A1BK
13	ø6.9	ø8.9	ø10.9	ø12.9	-	UB13 A1BK
15	ø6.9	ø8.6	ø10.1	ø11.8	-	UB15 A1BK
18	ø6.9	ø8.4	ø10.4	ø11.9	ø13.9	UB18 A1BK



SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 1

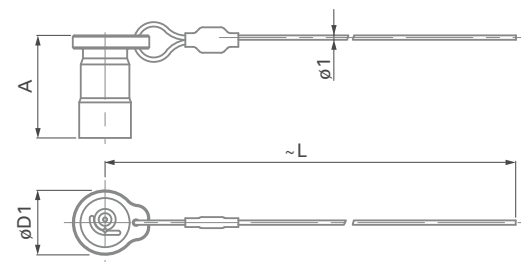
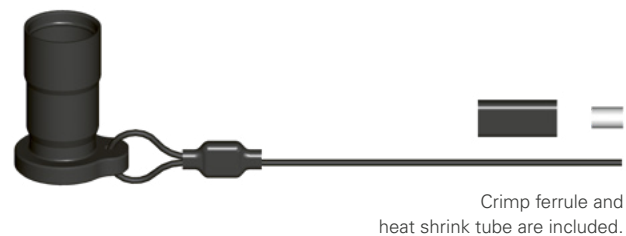


FIGURE 2

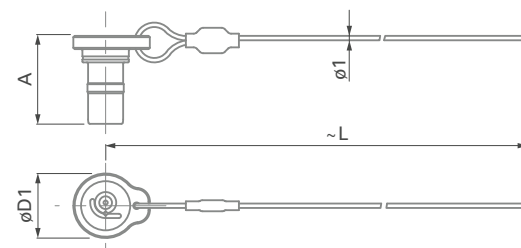
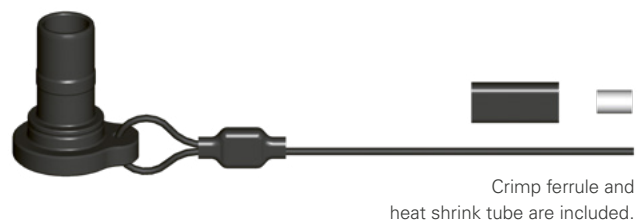
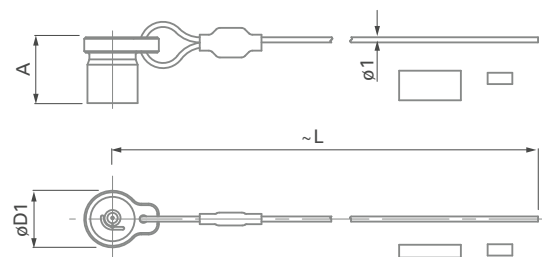
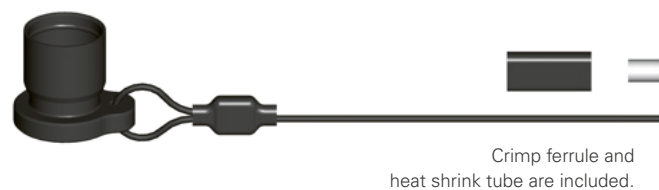
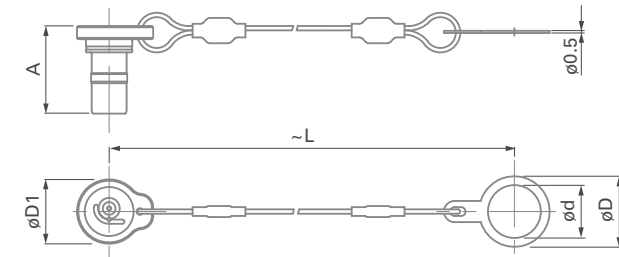


FIGURE 3



SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 4



Size	Plug		Receptacle				A	øD1	L	ød	øD	Part number	Fig.
	UP01	UP50	UR01	UR02	UR03	UR50							
07	●						18.5	11.0	200	-	-	UCP07C 1A1 A200	1
			●	●	●	●	16.0	11.0	200	-	-	UCR07C 1A1 A200	2
		●					12.8	11.0	200	-	-	UCP07P 1A1 A200	3
			●	●	○		16.0	11.0	95	10	14	UCR07P 1A1 A095	4
08	●						23.2	14.6	200	-	-	UCP08C 1A1 A200	1
			●	●	●	●	19.9	14.6	200	-	-	UCR08C 1A1 A200	2
			●	●	○		19.9	14.6	95	12	16	UCR08P 1A1 A095	4
11	●						22.0	17.6	200	-	-	UCP11C 1A1 A200	1
			●	●	●	●	19.2	17.6	200	-	-	UCR11C 1A1 A200	2
			●	●	○		19.2	17.6	95	16	21	UCR11P 1A1 A095	4
13	●						25.0	20.7	200	-	-	UCP13C 1A1 A200	1
			●	●	●	●	22.5	20.7	200	-	-	UCR13C 1A1 A200	2
			●	●			22.5	20.7	95	18	23	UCR13P 1A1 A095	4
15	●						25.0	22.7	200	-	-	UCP15C 1A1 A200	1
			●	●			22.5	22.7	95	20	25	UCR15P 1A1 A095	4
18	●						29.5	28.7	200	-	-	UCP18C 1A1 A200	1
			●	●			25.0	28.7	95	25	29	UCR18P 1A1 A095	4

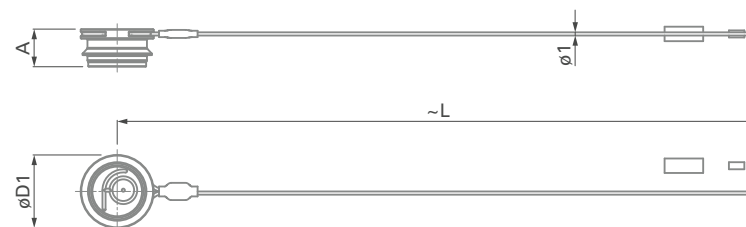
● Recommended for optimal sealing.

○ Compatible but not recommended for optimal sealing.

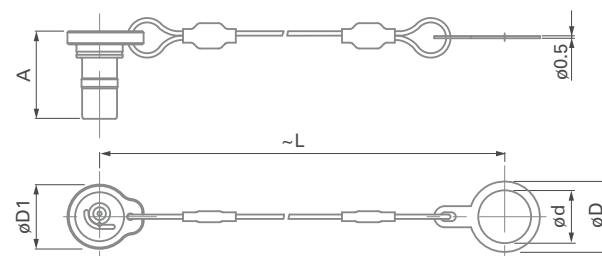
All dimensions and images shown are in millimeters and are for reference only.

CAPS - LANYARD WITH POLYESTER CORD

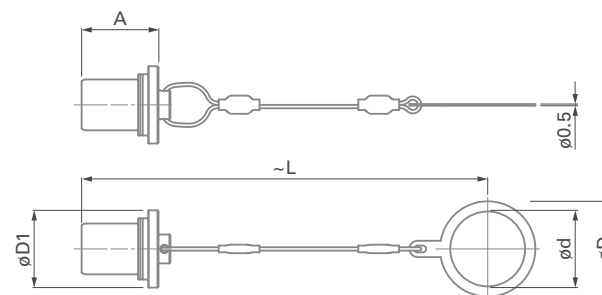
SOFT CAP PLUG



SOFT CAP RECEPTACLE



METAL CAP RECEPTACLE



Size	Plug	Receptacle		A	øD1	L	ød	øD	Part number
	UP02 (soft)	UR04 (soft)	UR04 (metal)						
15	●			11.7	22.7	200	-	-	UCP15C 1A2 A200
		●		22.5	22.7	95	22	28	UCR15P 1A1 A095 C
			●	22.6	22.7	95	22	28	UCR15P 4BKA3 A095

¹⁾ Crimp ferrule and heat shrink tube are included.

SPANNER & NUT DRIVER**DOUBLE-ENDED
OPEN SPANNER**
EXTRA THIN 

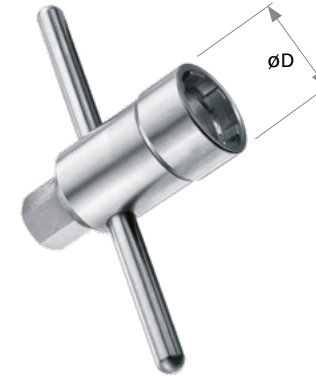
Part number	Opening across flats	Length	Fork thickness
TX00.008	8	96	2.3
TX00.009	9	102	2.5
TX00.010	10	104	2.5
TX00.011	11	114	2.5
TX00.014	14	130	3.0

Material – Chrome Alloy Steel, Chrome plated, Fork Angles – 15° and 75°.

OPEN SPANNER
EXTRA THIN 

Part number	Opening across flats	Length	Fork thickness
TX00.015	15	145	5.2
TX00.017	17	160	5.5
TX00.019	19	175	6.0
TX00.020	20	175	6.0
TX00.022	22	196	6.5
TX00.027	27	240	7.4

Material – Chrome Vanadium Steel, Chrome plated, Fork Angle – 15°.

**NUT DRIVER WITH T-HANDLE
AND HEX DRIVE** 

Part number	Thread size	Nut outer dia.	øD	Hex drive
TC00.000	M9 x 0.5	12	15	7
TC00.007	M10 x 0.5	13	16	7
TF00.001	M12 x 1	15	18	10
TK00.002	M16 x 1	20	23	12
TP00.011	M18 x 1	23	26	12
TP00.013	M20 x 1	25	28	12
TQ00.005	M25 x 1	31	35	17

Material – Hardened Tool Steel, Nickel plated.

RLS (RATCHET LOCKING SYSTEM)

Part number	Opening across flats	Length	Fork thickness
TX00.022	22	196	6.5

Part number	Thread size	Nut outer dia.	øD	Hex drive
TR00.004	M24 x 1	28	32	12

All dimensions and images shown are in millimeters and are for reference only.

MATERIAL & SURFACE FINISH

Components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Push-pull locking and Quick release	Spring sleeve (plug), shell (plug), Mounting nut (receptacle UR01 and UR02), Bodies (all)	Aluminum AlMgSiSn1Bi	EN-AW-6023	Anthracite Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
		Brass CuZn39Pb3	CW614N UNS C 38500		
	Back nut (plug & cable mounted receptacle), Mounting nut (receptacle) ²⁾	Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
		Brass CuZn39Pb3	CW614N UNS C 38500		
RLS (Ratchet Locking System)	Bodies (all) , mounting nut (receptacle UR04)	Aluminum AlMg1SiCu	EN-AW-6061	Black Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Shell (plug)	Aluminum AlMg1SiCu	EN-AW-6061	Hard Anodizing Black Teflon Impregnation	MIL-A-63576 Type I
	Back nut (plug)	Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Slotted ring, ground contact	Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Ratchet ring	Carbon PEEK		-	-
	Compression spring	316 stainless steel		-	-
Ground contact		Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Contacts	- Male, ground pin - Female	Brass; CuZn39Pb3 Bronze; CuSn4Zn4Pb4	CW614N; UNS C 38500 CW456K; ASTM B 139 UNS C 54400	1 µm Gold over Nickel	MIL-DTL-45204D Type I; ASTM B488

Insulator and sealing		International symbol	Flammability
Insulator		PBT, PEEK ¹⁾	UL 94 V-0
Inner sleeve	- Cable connectors	POM	UL 94 HB
Sealant materials	- «V» Vacuum sealed connectors	Bi-component Epoxy compound	UL 94 HB
	- «W» Water sealed connectors	Silicon compound	UL 94 V-0
Bend relief	- Cable connectors	Santoprene™ TPV 101-64	UL 94 HB

O-rings	International symbol	Chemical name
General	FPM (Viton®)	Fluoro elastomer
Interface and locking o-ring (Ratchet Locking System)	FVMQ	Fluorosilicone rubber

¹⁾ PBT for size 08, 11, 13 and 18, PEEK for size 07, 15 and layout 207 for size 11 (USB 3.2 gen 2)

MATERIAL & SURFACE FINISH

Caps	Material	Flammability
Cap (soft)	TPV (Santoprene™)	UL 94 HB
Cap (metal)	Aluminum AlMg1SiCu	
Cord (soft and metal)	Polyester	-
Fixing lug	Anthracite plated brass (ISO CuZn37)	-
Crimp ferrule	Nickel plated copper	-

ENVIRONMENTAL & MECHANICAL DATA (PUSH-PULL LOCKING & QUICK RELEASE)

Characteristic	Performance	Standard
Sealing performance mated and unmated ³⁾	Plug: IP68 2 m submersion for 24 hours	IEC 60529
	Receptacle "W": IP68 2 m submersion for 24 hours	IEC 60529
	Receptacle "V": Hermetic, tested <10 ⁻⁸ mbar l/s	IEC 60068-2-17 Test Qk, Method 3
Sealing performance soft caps	IP68 2 m submersion for 24 hours	IEC 60529
Operating temperature range	-55 °C to +135 °C ¹⁾	IEC 60068-2-14-Nb
Corrosion resistance ²⁾	Salt mist, 1,000 hours, 5% salt solution, 35 °C;	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101; EIA-364-26
Endurance	10,000 mating cycles ⁴⁾	IEC 60512-9-1; EIA-364-09
Vibration, random (Size 08, 11, 13, 15, 18)	37.8 Grms, 50-2000Hz, 3x4hrs, no discontinuity > 1 µs	MIL-STD-202 Method 214A Condition I; EIA-364-28 Condition V
Vibration (Size 07)	10 to 2,000 Hz, 1.5 mm or 15 g, 12 sweep cycles per axis, 20 minutes per 10-2,000-10 Hz sweep cycle, no discontinuity > 1 us;	MIL-STD-202 Method 204 Condition B
Shock	300g amplitude, half sine pulse of 3 ms, no discontinuity > 1 µs	MIL-STD-202 Method 213; EIA-364-27

¹⁾ Temperature range of -40 °C to +125 °C for cable connectors overmolded with TPU material. Max. temperature of +85 °C for soft caps.

²⁾ Plug and receptacle in mated position or with cap when unmated. For Brass connectors only.
Aluminum version not recommended for Marine use. Preserved mechanical and electrical functionality. Visual aspect might be altered.

³⁾ Sealing performance of pin layout 204H valid only in mated condition due to coax insert.

⁴⁾ 500 mating cycles for pin layout 204H due to coax insert.

ENVIRONMENTAL & MECHANICAL DATA (RLS - RATCHET LOCKING SYSTEM)

Characteristic	Performance	Standard
Sealing performance ¹⁾ plug (mated and unmated)	IP68 2 m submersion for 24 hours	IEC60529
Sealing performance ¹⁾ receptacle	"W" sealing level: IP68 2 m submersion for 24 hours	IEC60529
	"V" sealing level: Hermetic : Tested: <10 ⁻⁸ mbar l/s	IEC60068-2-17 Test Qk, Method 3
Sealing performance (soft and metal caps)	IP68 2 m submersion for 24 hours	IEC 60529
Operating temperature range	-55 °C to +135 °C ²⁾	IEC 60068-2-14-Nb
Corrosion resistance	Salt mist, 250 hours, 5% salt solution, 35 °C	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101 ; EIA-364-26
Endurance	3,000 mating cycles ³⁾	IEC 60512-9-1; EIA-364-09
Vibration, random	37.8 Grms, 50-2000Hz, 3x4hrs, no discontinuity > 1 µs	MIL-STD-202H, Method 214, condition I , Letter J EIA-364-28 Condition V
Vibration, sinus	30g, 10-2000Hz, 3x4hrs, no discontinuity > 1 µs	MIL-STD-202H Method 204 Condition G
Shock	300g amplitude, half sine pulse of 3 ms, no discontinuity > 1 µs	MIL-STD-202H Method 213 ; EIA-364-27

¹⁾ Sealing performance of pin layout 204H valid only in mated condition due to coax insert.

²⁾ Temperature range of -40° C to + 125 °C for cable connectors overmolded with TPU material. Maximum temperature of +85 °C for soft caps.

³⁾ 500 mating cycles for pin layout 204H due to coax insert

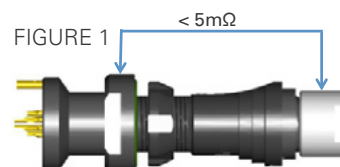
ELECTRICAL DATA ⁶⁾

Characteristic	Contact size	Typical values	Standard
Contact resistance over 10,000 mating cycles	ø0.5 mm	5.0 mΩ	IEC 60512-2-1-2a IEC 60512-2-2-2b
	ø0.7 mm	5.0 mΩ	
	ø0.9 mm	4.0 mΩ	
	ø1.6 mm	2.5 mΩ	
	ø2.3 mm	2.5 mΩ	
Shell resistance ⁴⁾ (Push-pull locking and quick-release)		< 5.0 mΩ	IEC 60512-2-6-2f
Shell resistance ⁴⁾ (RLS Ratchet Locking System)		< 10.0 mΩ	IEC 60512-2-6-2f
Insulation resistance		> 10 ¹⁰ Ω	IEC 60512-3-1-3a Method C
Shielding effectiveness ⁵⁾		> 54 dB	up to 1 GHz, IEC 60512-23-3

⁴⁾ Measurement points on Figure 1.

⁵⁾ Size 08 connector pair.

⁶⁾ Please refer to www.fischerconnectors.com/technical for technical specification of coax insert.



DATA TRANSMISSION

				
USB 2.0	USB 3.2	ETHERNET	SINGLE PAIR ETHERNET	AUDIO/VIDEO
480 Mbit/s	10 Gbit/s	1 Gbit/s	1 Gbit/s	10.2 Gbit/s
				
Size 07 004	Size 11 207	Size 07 009	Size 07 0S2	Size 11 019

H-35 / H-46

FISCHER ULTIMATE™ USB-C

ULTIMATE USB-C

ULTIMATE USB-C



PLUGS



PRE-CABLED SOLUTION

- Body styles H-36
- Technical dimensions H-37

RECEPTACLES



PRE-CABLED SOLUTION

- Body styles H-38
- Technical dimensions H-39



FOR ULTIMATE USB-C

- Pre-cabled plug configurations H-42
- Part numbering H-43
- Accessories H-44
- Tooling H-45
- Technical information H-46

This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

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PLUGS

		PRE-CABLED		
Body style		UP02 (to USB-C)	UP02 (to UP02)	References to detailed information
Protection	Sealed up to IP68 ²⁾	●	●	Sealing categories, page A-6
Locking system	RLS Ratchet Locking System	●	●	Locking systems, page A-5
Termination	Cabled to	USB-C	UP02R15	
Housing material	Aluminum	●	●	Part numbering, page H-42
Housing color	Black ¹⁾	●	●	
Design	Straight	●	●	Body styles, page H-37
	Right-angle			
Cabling	Overmolded	●	●	
Accessories	Sealing caps	●	●	Accessories, page H-43
Size	15	●	●	Technical dimensions, page H-37

¹⁾ Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

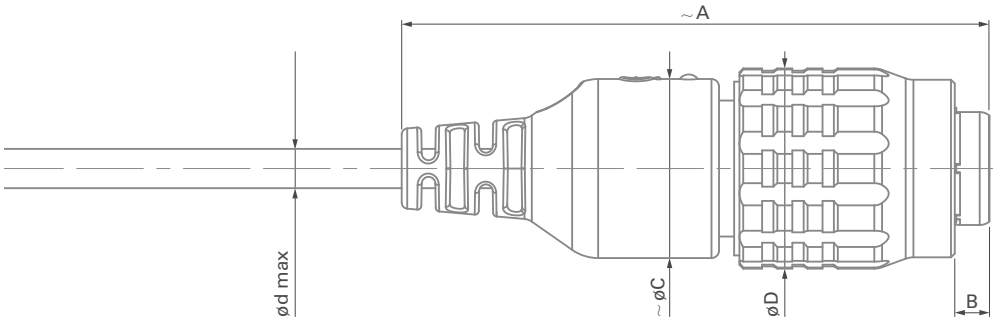
²⁾ UP02 is IP68 mated or with sealing cap.

PLUGS

PRE-CABLED
SOLUTION

UP02

BODY STYLE



Size	A	B	C	øD	ød max
15	78.0	4.5	23.8	26.5	5.0

All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

		PRE-CABLED		
Body style		UR04		References to detailed information
Protection	Sealed up to IP68 ¹⁾	●	●	Sealing categories, page A-6
	Hermetic	●	●	
Termination	Flex ²⁾	●		
	USB-C Cable		●	
Housing material	Aluminum	●	●	Part numbering, page H-42
Housing color	Black ³⁾	●	●	
Design	Straight	●	●	Body styles, page H-39
	Right-angle			
	Flush			
Assembly	Rear-mounting	●	●	
Cabling	Overmolded			
Accessories	Sealing caps	●	●	Accessories, page H-43
Size	15	●	●	Technical dimensions, page H-39

¹⁾ IP68 mated or with sealing cap.

²⁾ Flex terminated with connector Hirose BM24-24DP2-0.35V, mate with connector Hirose BM24-24DS2-0.35V.

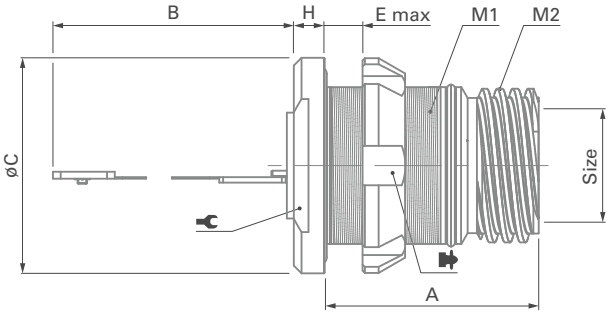
³⁾ Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

RECEPTACLES

PRE-CABLED
SOLUTION

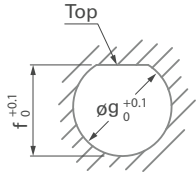
UR04

BODY STYLE



Size	A	B	øC	E max	H	M1	M2			Torque
15	27.7	60.0	28.0	9.0	4.0	M22x1	TR20x6 (P2)	22	TR00.004	8 Nm

Size	f	øg
15	20.5	22.1



PANEL CUT-OUT

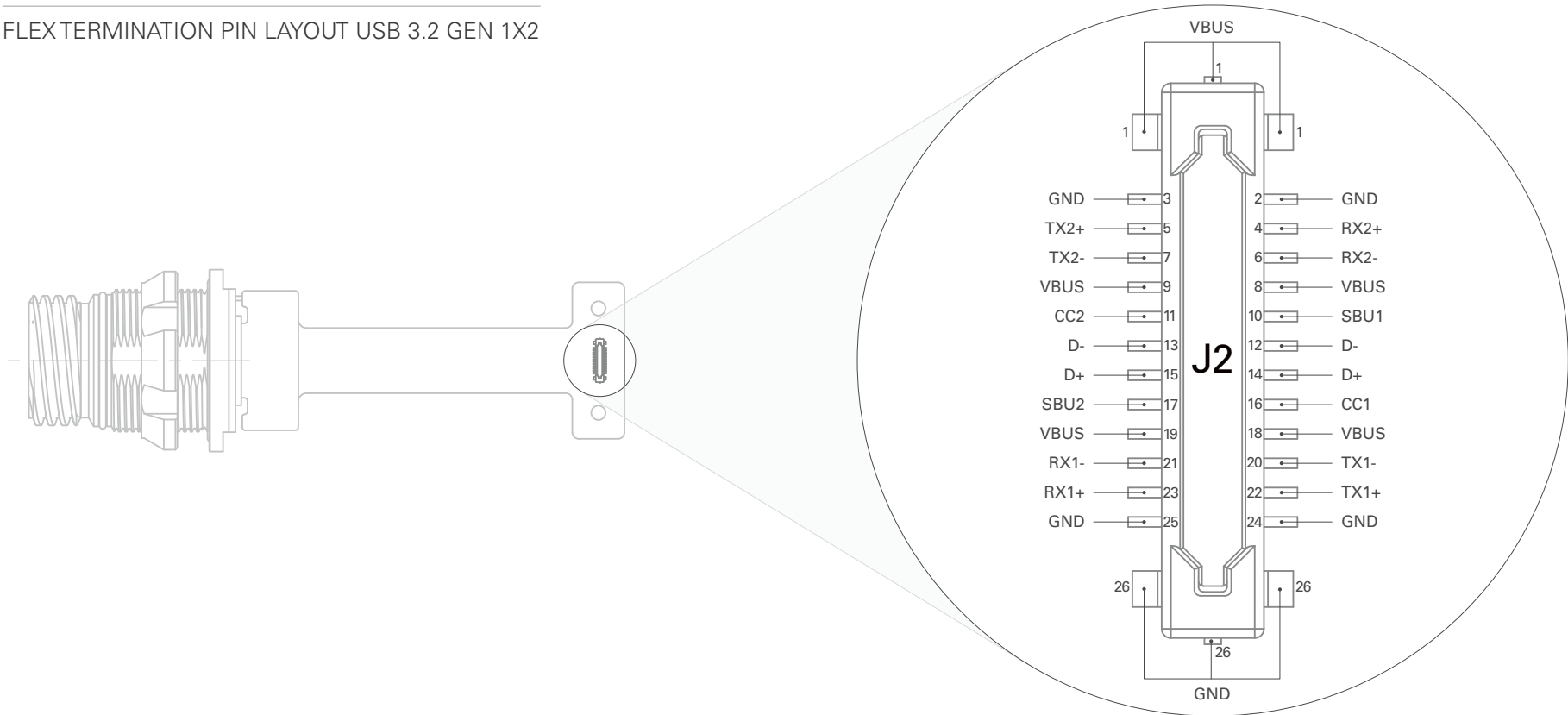
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PRE-CABLED SOLUTION

UR04

FLEX TERMINATION PIN LAYOUT USB 3.2 GEN 1X2



RECEPTACLES

PRE-CABLED
SOLUTION

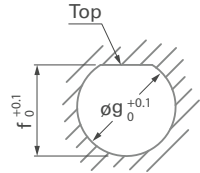
UR04

BODY STYLE



Size	A	B	ØC	D	E max	H	M1	M2			Torque
15	27.7	27.0	28.0	~800.0	9.0	4.0	M22x1	TR20x6 (P2)	22	TR00.004	8 Nm

Size	f	Øg
15	20.5	22.1



PANEL CUT-OUT

All dimensions and images shown are in millimeters and are for reference only.

CABLE SPECIFICATION

- **Differential Impedance:** 85 +/- 10 Ohms
- **Breaking strength:** 300N
- **Working temperature:** -30 °C to +85 °C
- **Overall diameter:** nominal 4.6 mm +/- 0.20 mm
- **Protocol:** USB 3.2 Gen 2x2

PRE-CABLED
PLUG SOLUTION
UP02 TO UP02



STANDARD REFERENCE	Termination 1 UP02R15	Overall length = 0.8m	Termination 2 UP02R15
143139 CA D 16XLV UP02R15/UP02R15 TPE BK 0.8M			

PRE-CABLED
PLUG SOLUTION
UP02 TO USB-C



STANDARD REFERENCE	Termination 1 UP02R15	Overall length = 0.8m	Termination 2 USB-C
143140 CA D 16XLV UP02R15/USB-C TPE BK 0.8M			

PRE-CABLED RECEPTACLE
SOLUTION
UR04 TO USB-C



STANDARD REFERENCE	Termination 1 UR04-15	Overall length = 0.8m	Termination 2 USB-C
145845 CA D 16XLV UR04W15/USB-C TPE BK 0.8M			

PLUGS & RECEPTACLES

Example:	Connector Design				Contact Block			Housing		Standard options				
	UP02		R	15	M	UBC	K	BB	1	Z	2	Z	A	
	UR04	V		15	F	UBC	F	BB	1	E	2	A	A	Housing Material
														■ A = ALUMINUM
														Grounding
														Panel mounted: ■ A = Grounding pin (for UR04)
														Cable mounted: ■ Z = Not applicable
														Insulator Material
														■ 2 = PEEK
														O-ring material
														Receptacle: O-ring at plug interface
														■ E = FVMQ (Fluorosilicone)
														Plug: ■ Z = Not applicable
														Keying code
														■ Code 1 = ●
														■ Code 3 = ■
														■ Code 2 = ▼
														■ Code 4 = ✕
														Standard keying = Code 1
														Standard guide mark = White
														Housing color
														■ BB = Black
														Contact Type
														■ F = Flex
														■ K = Cable
														Layout references
														■ Size 08: UBC (USB-C insert)
														Polarity of contacts
														■ M = Male insert
														■ F = Female insert

Body style

UltiMate Plug = UP

■ UP02 = Cable mounted (available only pre-cabled)

UltiMate Receptacle = UR

■ UR04 = Panel rear mounted

Sealing level

Panel mounted:

■ V = Hermetic

Locking system

Cable mounted plug:

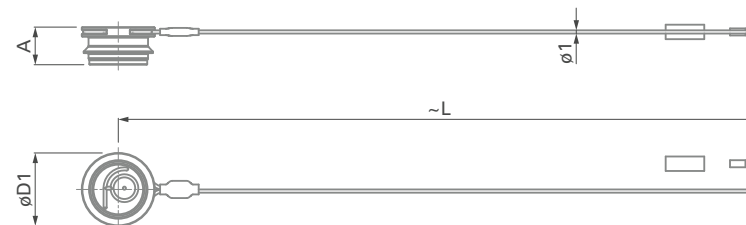
■ R = RLS (Ratchet Locking System)

Connector size

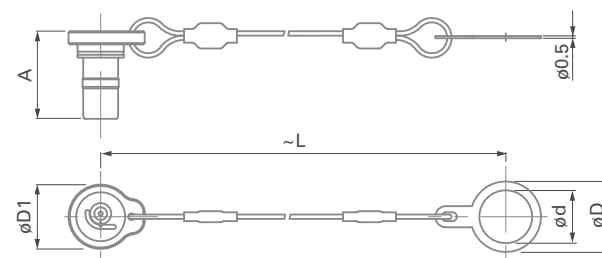
■ 15 = Size 15

CAPS - LANYARD WITH POLYESTER CORD

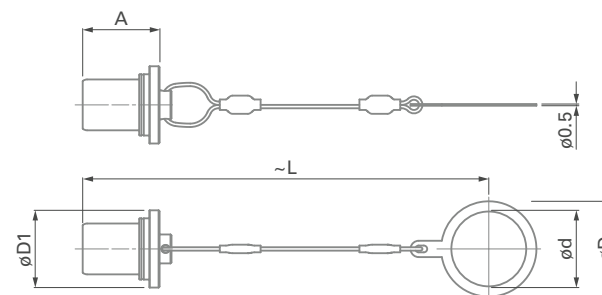
SOFT CAP PLUG



SOFT CAP RECEPTACLE



METAL CAP RECEPTACLE



Size	Plug	Receptacle		A	øD1	L	ød	øD	Part number
	UP02 (soft)	UR04 (soft)	UR04 (metal)						
15	●			11.7	22.7	200	-	-	UCP15C 1A2 A200
		●		22.5	22.7	95	22	28	UCR15P 1A1 A095 C
			●	22.6	22.7	95	22	28	UCR15P 4BKA3 A095

¹⁾ Crimp ferrule and heat shrink tube are included.

Tooling

FISCHER ULTIMATE™ USB-C

SPANNER & NUT DRIVER

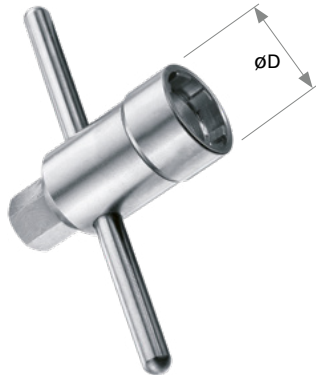
OPEN SPANNER
EXTRA THIN



Part number	Opening across flats	Length	Fork thickness
TX00.022	22	196	6.5

Material – Chrome Vanadium Steel, Chrome plated, Fork Angle – 15°.

NUT DRIVER WITH T-HANDLE
AND HEX DRIVE



Part number	Thread size	Nut outer dia.	ØD	Hex drive
TR00.004	M24 x 1	28	32	12

Material – Hardened Tool Steel, Nickel plated.

All dimensions and images shown are in millimeters and are for reference only.

MATERIAL & SURFACE FINISH

Components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Bodies (all), mounting nut (receptacle UR04)		Aluminum AlMg1SiCu	EN-AW-6061	Black Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Shell (plug)		Aluminum AlMg1SiCu	EN-AW-6061	Hard Anodizing Black Teflon Impregnation	MIL-A-63576 TYPE I
Back nut (plug)		Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Slotted ring, ground contact		Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Ratchet ring		Carbon PEEK	-	-	-
Compression ring		316 stainless-steel	EN1.4401 UNS S31600	-	-
Contacts	- Male, ground pin	Brass; CuZn39Pb3	CW614N; UNS C 38500	1 µm Gold over Nickel	MIL-DTL-45204D
Flex PCB		FR4 + Polyimide (UL 94 V-0)	-	-	-

Insulator and sealing		International symbol	Flammability
Insulator		PEEK	UL 94 V-0
Inner sleeve		POM	UL 94 HB
Sealant materials	- Receptacle	Bi-component Epoxy compound	UL 94 HB
	- Plug	Bi-component Polyurethane compound	UL 94 V-0

Caps		Material	Flammability
Cap (soft)		TPV (Santoprene™)	UL 94 HB
Cap (metal)		Aluminum ¹⁾ AlMgSiSn1Bi	-
Cord		Polyester	-
Fixing lug		Anthracite plated brass (ISO CuZn37)	-
Crimp ferrule		Nickel plated copper	-

O-rings		International symbol	Chemical name
General		FPM (Viton®)	Fluoro elastomer
Interface and locking o-ring (RLS Ratchet Locking System)		FVMQ	Fluorosilicone rubber

¹⁾ Material standard: EN-AW-6061. Finish: Black Nickel. Standard: SAE-AMS-QQ-N-290, SAE-AMS 2404.

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance	Plug (mated or with cap): IP68 2 m submersion for 24 hours Plug (unmated): IP50	IEC 60529
	Receptacle (mated and unmated): IP68 2 m submersion for 24 hours, Hermetic : Tested: <10 ⁻⁸ mbar l/s	IEC 60529 IEC 60068-2-17 Test Qk, Method 3
Sealing performance caps	IP68, 2 m submersion for 24 hours	IEC 60529
Operating temperature range	-30 °C to +80°C	IEC 60068-2-14-Nb
Corrosion resistance (mated)	Salt mist, 250 hours, 5% salt solution, 35 °C	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101; EIA-364-26
Endurance	3,000 mating cycles ¹⁾	IEC 60512-9-1; EIA-364-09
Vibration, random	5.35 Grms, 50-2000Hz, 3x1.5hrs, no discontinuity > 1 µs	MIL-STD-202 Method 214A Condition I; Letter A
Vibration, sinus	10g, 10-500Hz, 3x3hrs, no discontinuity > 1 µs	MIL-STD-202 Method 204 Condition A
Shock	100 g peak, half sine pulse of 6 ms, no discontinuity > 1 µs	MIL-STD-202 Method 213

¹⁾ Flex PCB connector from Hirose on panel receptacle limited to 10 mating cycles.

FISCHER **ULTIMATE™** USB-C

H-49 / H-63

ULTIMATE 80

PLUGS



PRE-CABLED SOLUTION

■ Body styles (UP81).....	H-50
■ Technical dimensions	H-51



CONNECTOR

■ Body styles (UP81).....	H-50
■ Technical dimensions	H-51



PANEL REAR MOUNTED

■ Body styles (UP80).....	H-50
■ Technical dimensions	H-52

RECEPTACLES



PRE-CABLED SOLUTION

■ Body styles (UR80).....	H-53
■ Technical dimensions	H-54



CONNECTOR

■ Body styles (UR80).....	H-53
■ Technical dimensions	H-54



PANEL REAR MOUNTED

■ Body styles (UR81).....	H-53
■ Technical dimensions	H-55

FOR ULTIMATE 80

■ Electrical & contact configurations	H-56
■ PCB hole layout	H-57
■ Mechanical coding.....	H-57
■ Part numbering	H-58
■ Pre-cabled plug / receptacle configurations	H-59
■ Accessories	H-60
■ Tooling	H-61
■ Technical information.....	H-62

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PLUGS

		PRE-CABLED	CONNECTOR	PANEL PLUG	
					
Body style		UP81	UP81	UP80	References to detailed information
Protection	Sealed up to IP68	●		●	Sealing categories, page A-6
Locking system	Quick-release	●	●	●	
Termination	Crimp contact	●	●		Electrical & contact configurations, page H-54
	Solder			●	
	PCB			●	
Housing material	Aluminum	●	●	●	Part numbering, page H-56
Housing color	Black ¹⁾	●	●	●	Part numbering, page H-56
Design	Straight	●		●	Body styles, page H-49
	Right-angle				
Cabling	Overmolded	●			
Accessories	Sealing caps	●	●	●	Accessories, page H-59
Size	08	●	●	●	Technical dimensions, page H-49

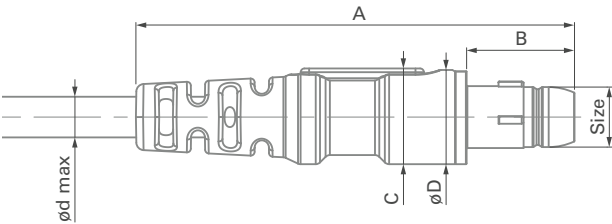
¹⁾ Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

PLUGS

PRE-CABLED

UP81

BODY STYLE

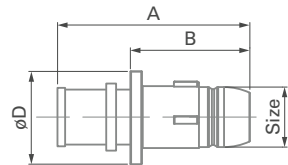


Size	A	B	C	øD	ød max
08	58.0	14.2	12.6	12.4	5.5

CONNECTOR

UP81

BODY STYLE



Size	A	B	øD
08	25.2	15.7	12.4

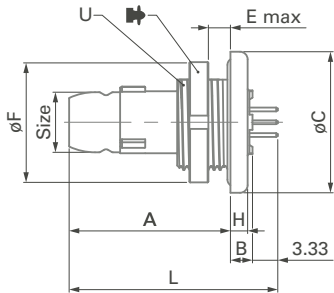
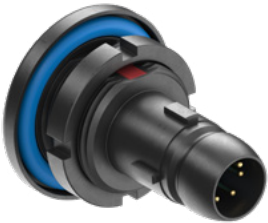
All dimensions and images shown are in millimeters and are for reference only.

PLUGS

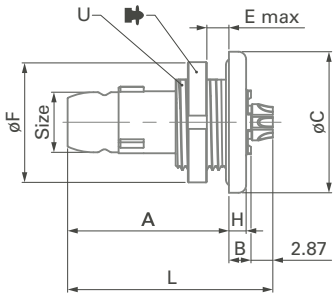
PANEL REAR MOUNTED

UP80

BODY STYLE



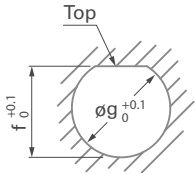
PCB



SOLDER

Size	Termination	A	B	øC	U	øF	E max	L		Torque
08	PCB	21.2	2.9	18.54	1/2-32UN-2A	15.9	3.2	27.43	TX00.401	2.5 Nm
	Solder	21.2	2.9	18.54	1/2-32UN-2A	15.9	3.2	26.97	TX00.401	2.5 Nm

Size	f	øg
08	12.05	12.8



PANEL CUT-OUT

RECEPTACLES

		PRE-CABLED SOLUTION	CONNECTORS		
			PANEL MOUNTED 	CABLE MOUNTED 	
Body style		UR80	UR81	UR80	References to detailed information
Protection	Sealed up to IP68	●	●		Sealing categories, page A-6
Termination	Crimp contact	●		●	Electrical & contact configurations, page H-54
	Solder contact		●		
	PCB contact		●		
Housing material	Aluminum	●	●	●	Part numbering, page H-56
Housing color	Black ²⁾	●	●	●	Part numbering, page H-56
Design	Straight	●	●		Body styles, page H-51
	Right-angle				
	Flush		●		
Assembly	Rear-mounting		●		
Cabling	Overmolded	●			
Accessories	Sealing caps	●	●	●	Accessories, page H-59
Size	08	●	●	●	Technical dimensions, page H-52

¹⁾ KIT is delivered with receptacle body, contact block, crimp contacts and crimp shield ferule. SAP 139351

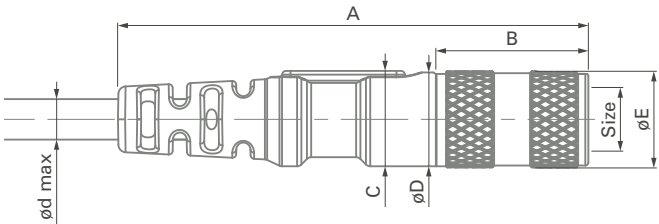
²⁾ Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

RECEPTACLES

PRE-CABLED
SOLUTION

UR80

BODY STYLE

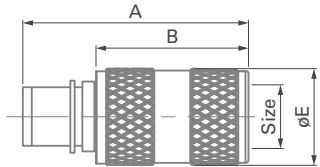


Size	A	B	C	ØD	ØE	Ød max
08	62.2	20.2	12.6	12.4	12.8	5.5

CONNECTORS

UR80

BODY STYLE



Size	A	B	ØE
08	29.6	20.2	12.8

Body style selection

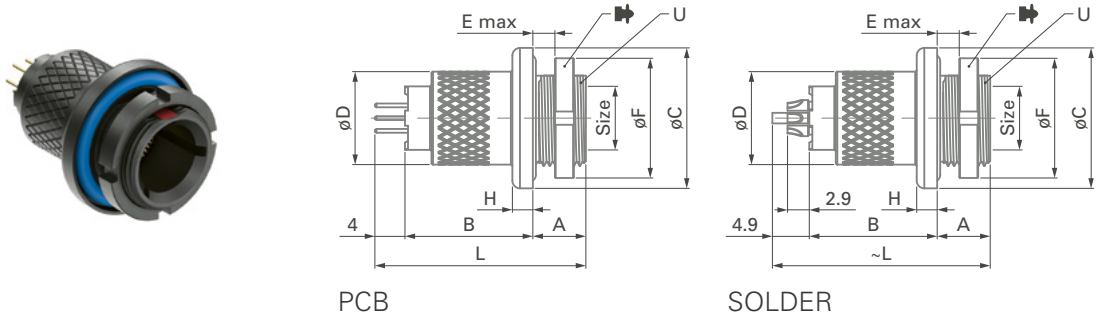
FISCHER **ULTIMATE™ 80**

RECEPTACLES

PANEL REAR
MOUNTED

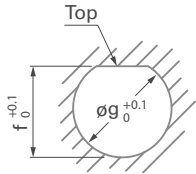
UR81

BODY STYLE



Size	Termination	A	B	øC	øD	U	øF	H	E max	L		Torque
08	PCB	7.0	16.9	18.6	12.3	1/2-32 UN-2A	15.9	2.8	3.2	27.9	TX00.401	2.5 Nm
	Solder	7.0	16.9	18.6	12.3	1/2-32 UN-2A	15.9	2.8	3.2	28.8	TX00.401	2.5 Nm

Size	f	øg
08	12.05	12.8



PANEL CUT-OUT

All dimensions and images shown are in millimeters and are for reference only.

ELECTRICAL & CONTACT CONFIGURATIONS

Size	Pin layout	Layout reference	Number of contacts	Contact diameter [mm]	Wire size ³⁾		PCB contacts	Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					IEC 60512-4-1 Test 4a								
					Solder contacts ²⁾	Crimp contacts	Pin diameter [mm]	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
										Contact to body	Contact to contact	Contact to body	Contact to contact
08		006 /105 ¹⁾	6	0.7	max ø1.02 mm AWG19 [1] AWG20 [26/34]	max ø0.85 mm min ø0.48 mm AWG22-28	0.5	2x 9 ⁶⁾ 2x 2 2x 0.02	≤ 200	0.8	1.3	1.5	2.3
		007 /106 ¹⁾	7	0.7	max ø1.02 mm AWG19 [1] AWG20 [26/34]	max ø0.85 mm min ø0.48 mm AWG22-28	0.5	2x 9 ⁶⁾ 3x 2 2x 0.02	≤ 200	0.8	1.3	1.5	2.3

¹⁾ First digit indicates the number of first mate last break (FMLB) contacts.

²⁾ Solder contacts option only for UR81 and UP80 in replacement of the standard PCB contacts.

³⁾ For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

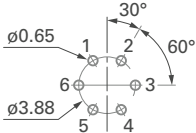
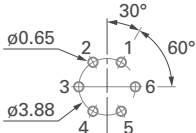
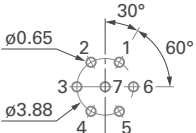
⁴⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾ Alternatively, only 2 contacts loaded : 2x 10 A

PCB / PIN LAYOUT

View from the front of the plug / receptacle ¹⁾

Size	Type	Number of contacts (layout reference)	
		006 / 105	007 / 106
08	Plug		
	Receptacle	 	

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

MECHANICAL CODING ²⁾

PLUGS	Code Y
	
RECEPTACLES	Code Y
	

²⁾ View from front of connectors. For further details see part numbering.

PLUGS & RECEPTACLES

Example:

Connector Design		
UP81	Q	08
UR81	W	08

Contact Block		
M	105	C
F	007	P

Housing	
BB	Y
BB	Y

Standard options			
Z	2	Z	A
S	2	N	A

Body style

UltiMate Plug = UP

- UP81 = Cable mounted
- UP80 = Panel Rear Mounted

UltiMate Receptacle = UR

- UR80 = Cable mounted
- UR81 = Panel rear mounted

Sealing level and locking system

Ultimate 80 Plug

Cable mounted (UP81):

- Q = Sealing not applicable, quick release locking

Panel rear mounted (UP80):

- Q = Sealing watertight, quick release locking

Ultimate 80 Receptacle:

Cable mounted (UR80):

- Z = Sealing not applicable, quick release locking

Panel Rear mounted (UR81):

- W = Water sealed and quick release locking

Connector size

- 08 = Size 08

Housing Material

- A = ALUMINUM

Grounding

Panel mounted:

- N = None (UR81, UP80)

Cable mounted:

- Z = Not applicable (UP81, UR80)

Insulator Material

- 2 = PEEK

O-ring material

Receptacle:

- S = FVMQ (Fluorosilicone)

Plug:

- Z = Not applicable

Keying code

- Code Y

Standard keying = Code Y (95° / 230°)

Housing color

- BB = Black

Contact Type

- S = Solder
- P = PCB
- C = Crimp

Layout references

- Size 08:

Plug:
105, 106

Receptacle
006, 007

Polarity of contacts

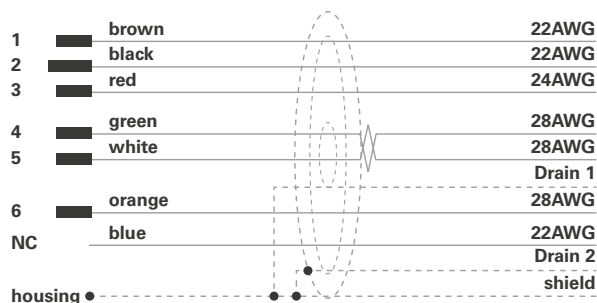
- M = Male contacts

- F = Female contacts

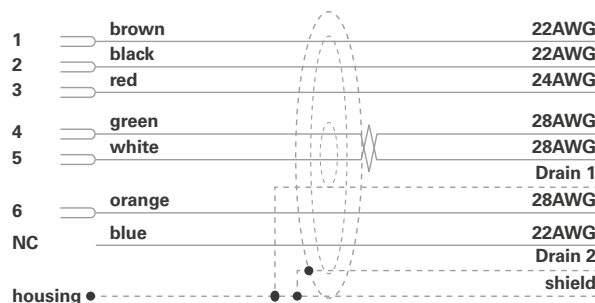
CABLE SPECIFICATION FOR PRE-CABLED 6 CONTACTS

- PUR halogen free, flame retardant outer sheath, nominal thickness 0.55 mm, TAN (RAL 7002 matt) / BLACK (RAL 9005 matt)
- Working voltage: 300 V
- Weight: 52 kg/km
- Breaking strength: 800 N (Vectran central strength member)
- Minimum bending radius: 27 mm static / 60 mm dynamic
- Working temperature: -40 °C to +90 °C
- Overall diameter: nominal 5.40 mm +/-0.20 mm

Pre-cabled plug 6 contacts (UP81)



Pre-cabled receptacle 6 contacts (UR80)



AWG22

Tinned copper conductor 19x0.16 mm / FEP insulation, nominal diameter 1.20 mm, color blue, brown, black

AWG24

Tinned copper conductor 19x0.13 mm / FEP insulation, nominal diameter 0.86 mm, color red

AWG28

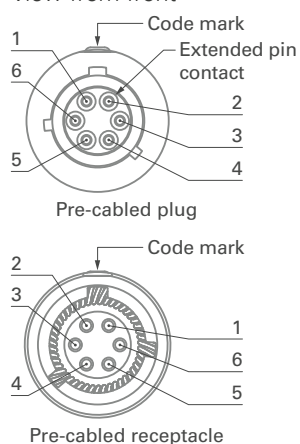
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

Shield

Overall screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm / Overall tinned copper shield, nominal coverage >= 90%

WIRING DIAGRAM FOR STANDARD PRE-CABLED 6 CONTACTS

View from front



WIRE	PRE-CABLED PLUG SOLUTION
	1 m, open end Pin number
AWG22 brown	1
AWG22 black	2 Extended pin
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	Not connected
Part number	140599 CA S 06 UP81Q08BBYA/OE PUR TN 1.0M
	140608 CA S 06 UP81Q08BBYA/OE PUR BK 1.0M

WIRE	PRE-CABLED RECEPTACLE SOLUTION
	1 m, open end Pin number
AWG22 brown	1
AWG22 black	2
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	Not connected
Part number	140601 CA S 06 UR80Z08BBYA/OE PUR TN 1.0M
	140610 CA S 06 UR80Z08BBYA/OE PUR BK 1.0M

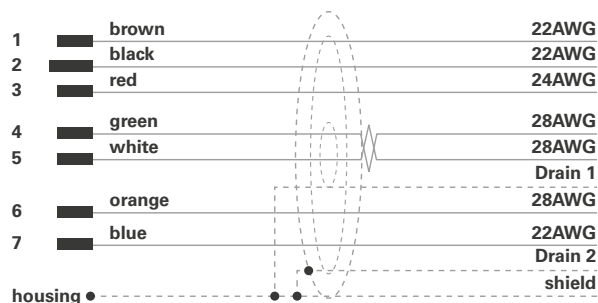
REMARK: Pin No. can be assigned according to NATO AEP-4851 & NATO AEP-4695.

All dimensions and images shown are in millimeters and are for reference only.

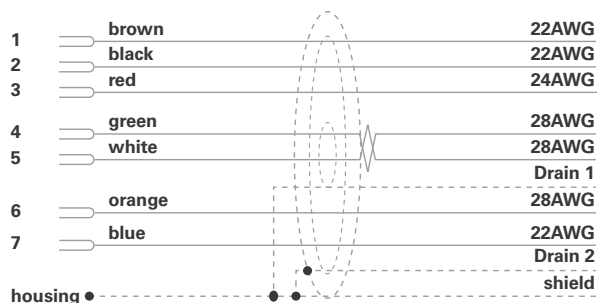
CABLE SPECIFICATION FOR PRE-CABLED 7 CONTACTS

- PUR halogen free, flame retardant outer sheath, nominal thickness 0.55 mm, TAN (RAL 7002 matt) / BLACK (RAL 9005 matt)
- Working voltage: 300 V
- Weight: 52 kg/km
- Breaking strength: 800 N (Vectran central strength member)
- Minimum bending radius: 27 mm static / 60 mm dynamic
- Working temperature: -40 °C to +90 °C
- Overall diameter: nominal 5.40 mm +/-0.20 mm

Pre-cabled plug 6 contacts (UP81)



Pre-cabled receptacle 6 contacts (UR80)



AWG22

Tinned copper conductor 19x0.16 mm / FEP insulation, nominal diameter 1.20 mm, color blue, brown, black

AWG24

Tinned copper conductor 19x0.13 mm / FEP insulation, nominal diameter 0.86 mm, color red

AWG28

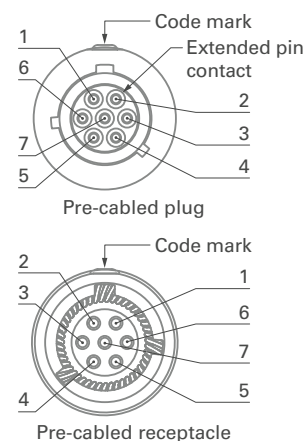
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

Shield

Overall screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm / Overall tinned copper shield, nominal coverage >= 90%

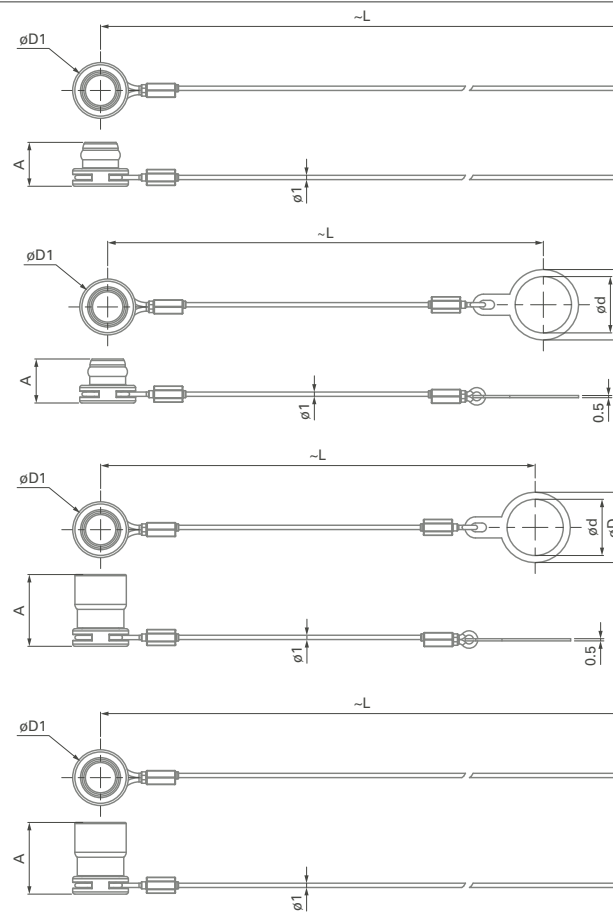
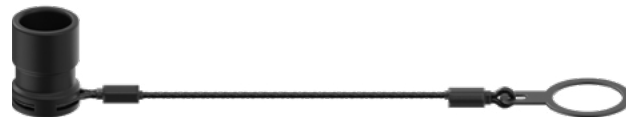
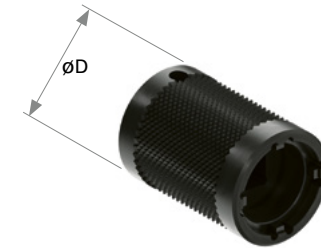
WIRING DIAGRAM FOR STANDARD PRE-CABLED 7 CONTACTS

View from front



WIRE	PRE-CABLED PLUG SOLUTION
	1 m, open end Pin number
AWG22 brown	1
AWG22 black	2 Extended pin
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	7
Part number	140600 CA S 07 UP81Q08BBYA/OE PUR TN 1.0M
	140609 CA S 07 UP81Q08BBYA/OE PUR BK 1.0M

WIRE	PRE-CABLED RECEPTACLE SOLUTION
	1 m, open end Pin number
AWG22 brown	1
AWG22 black	2
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	7
Part number	140602 CA S 07 UR80Z08BBYA/OE PUR TN 1.0M
	140611 CA S 07 UR80Z08BBYA/OE PUR BK 1.0M

SOFT CAPS - LANYARD WITH STAINLESS STEEL CABLE**NUT DRIVER****NUT DRIVER
WITH SQUARE SOCKET***

* For use with torque wrenches 1/4" (6.4 mm).

Part number	Nut thread size	Nut outer dia.	ϕD
TX00.401	1/2-32 UN	16	20

Material – PA

Size	Plug		Receptacle		A	$\phi D1$	L	ϕd	ϕD	Part number
	UP80	UP81	UR80 ¹⁾	UR81						
08			●		10.0	12.7	200	-	-	UCR80C 1B2 A200
				●	10.0	12.7	95	12.8	16	UCR80P 1B2 A095
	●				16.9	12.7	95	12.8	16	UCP80P 1B2 A095
		●			16.9	12.7	200	-	-	UCP80C 1B2 A200

¹⁾ Crimp ferrule and heat shrink tube are included.

All dimensions and images shown are in millimeters and are for reference only.

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance mated and unmated	IP68 2m/24h	IEC 60529; MIL-STD-810 Method 512.6
Operating temperature range	-55 °C to +135 °C	MIL-STD-810 Method 501.6 and 502.6
Corrosion resistance	Salt mist, 500 hours ^{1) 2)} , 5% salt solution, 35 °C ;	MIL-STD-810 Method 509.6
Endurance	10.000 mating cycles (plug), 5.000 mating cycles (receptacle) ³⁾	IEC 60512-9-1
Vibration, random	7.7 Grms	MIL-STD-810 Method 514.7
Unmating force	Typical 55 ± 15 N	IEC 60512-13-1
Shock	100g half sine pulse amplitude 6 ms duration, no discontinuity > 1 µs	MIL-STD-810 Method 516.7 Condition I

¹⁾ Corrosion resistance dependent on body style. 400h for UR81 and UP80 (panel rear mounted plug and receptacle).

²⁾ Cosmetic changes may appear over time without impacting mechanical or electrical functions.

³⁾ Preserved mechanical and electrical functionality. Normal wear could appear.

ELECTRICAL DATA

Characteristic	Performance	Standard
Contact resistance (typical value)	< 10 mΩ (typical value)	MIL-STD-202 Method 307
Shell resistance (typical value)	< 50 mΩ (cabled; new condition)	MIL-STD-202 Method 307
Insulation resistance	> 10 ¹⁰ Ω	MIL-STD-883 Method 1003 MIL-STD-202 Method 302
Shielding effectiveness	> 54 dB up to 1 GHz ¹⁾	EIA-364-66A

¹⁾ For higher frequency range, contact our technical support.

MATERIAL & SURFACE FINISH

Components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Housing, nut		Aluminum AlMg1SiCu	EN-AW-6061	Black Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Locking spring (receptacles)		Stainless steel X5CrNiMo18-10	316/1.4401	0.64 µm Gold over Copper	-
Crimping ring (cable connectors)		Brass CuZn42	CW510L UNS C 28500	-	-
Contacts	- Male or Female (Crimp) - Male or Female (Solder or PCB)	CuNi1Pb1P	UNS C 19160 ASTM C 19160	1 µm Gold over Nickel	MIL-DTL-45204D Type I ; ASTM B488

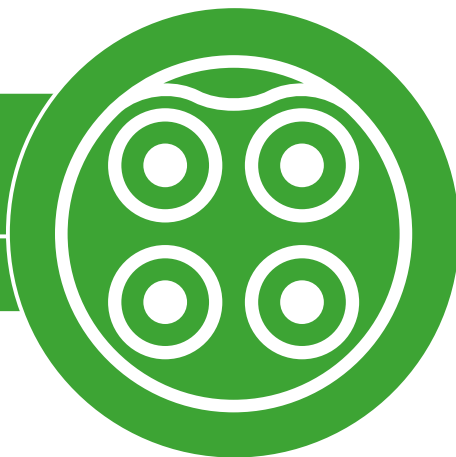
Insulator and sealing		International symbol	Flammability
Insulator	- Molded	PEEK ¹⁾	UL 94 V-0
Sealant materials	- Cable connectors	Bi-component Epoxy compound	-
	- Panel connectors	Silicone compound	UL 94 V-0

O-rings & seals	International symbol	Chemical name
O-rings	FVMQ	Fluorosilicone rubber
Interfacial seal (plug)	FVMQ	Fluorosilicone rubber

Pre-cabled solutions	Material	Flammability
Overmolding	TPU (Estane [®])	UL94 V-0
Cable jacket	PUR	UL94 V-2

Soft caps	Material	Flammability
Cap	TPV (Santoprene™)	UL 94 HB
Cable	FEP coated stainless steel	-
Fixing lug	Anthracite plated brass (ISO CuZn37)	-
Crimp ferrule	Aluminum	-
Heat shrink tube	Polyolefin	-

¹⁾ Or any material in the PAEK family that provides equal or better overall performances.



FISCHER **FIBEROPTIC** SERIES

ROBUST | OPTICAL PERFORMANCE | EASY CLEANING

KEY FEATURES

- Faultless optical performance
- Indoor, outdoor and extreme applications
- Up to IP67 (unmated) / IP68 (mated)
- Easy field cleaning



FIBEROPTIC

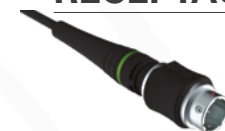
PLUGS



CABLE MOUNTED

- Body styles (P01)..... I-4
- Technical dimensions I-5

RECEPTACLES



CABLE MOUNTED

- Body styles (R50) I-8
- Technical dimensions I-9



PANEL REAR MOUNTED

- Body styles (R01) I-12
- Technical dimensions I-13



PANEL FRONT MOUNTED

- Body styles (R03; R13)..... I-12
- Technical dimensions I-16

FOR ALL FIBEROPTIC

- Configuration matrix..... I-3
- Body styles & technical dimensions I-4
- Wire and fiber termination I-22
- Part numbering I-23
- Protective caps I-25
- Deployment accessories I-26
- Accessories I-28
- Technical information..... I-29
- Quote request form..... I-31

This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

PLUGS & RECEPTACLES

Wire set	P01	R01	R03	R13	R50
F01		●	●	●	
F02		●	●	●	
F04		●	●	●	
FOH		●	●	●	

Cable Clamp set	P01	R01	R03	R13	R50
F01	●	●	●	-	●
F02	●	●	●	●	●
F04	●	●	●	●	●
FOH					

Potting set	P01	R01	R03	R13	R50
F01	●	●	●	-	●
F02	●	●	●	●	●
F04	●	●	●	●	●
FOH	●	●	●	●	●

PLUGS

CABLE
MOUNTED

Body style		P01	References to detailed information
Protection	Unsealed (IP50)		Sealing categories, page A-6
	Sealed up to IP68	●	
Locking system	Friction		Locking systems, page A-5
	Push-pull	●	
	Quick-release		
	Lanyard		
	Tamperproof		
Termination	Fiber optic termini	●	Fiber type and pin layout, page I-30
	Electrical solder contacts ¹⁾	●	
Housing color	Natural chrome	●	Technical information, page I-29
Design	Shortened body		
	Straight	●	
	Right-angle		
Rear Accessories ²⁾	Wire sets		Rear Accessories, pages I-5 to I-7
	Cable clamp set	●	
	Potting set	●	
Accessories	Cable bend reliefs		Accessories, page I-25
	Protective sleeves		
	Soft caps	●	
Size	FO1	●	Technical dimensions, pages I-5 to I-7 For more information visit our website www.fischerconnectors.com/technical
	FO2/FO4	●	
	FOH	●	

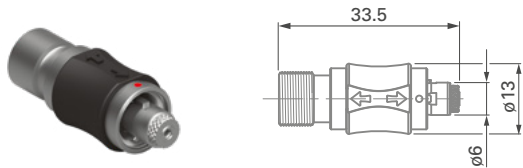
¹⁾ FOH only.²⁾ Please refer to configurations matrix on page I-3.

PLUGS - FO1

CABLE
MOUNTED

P01

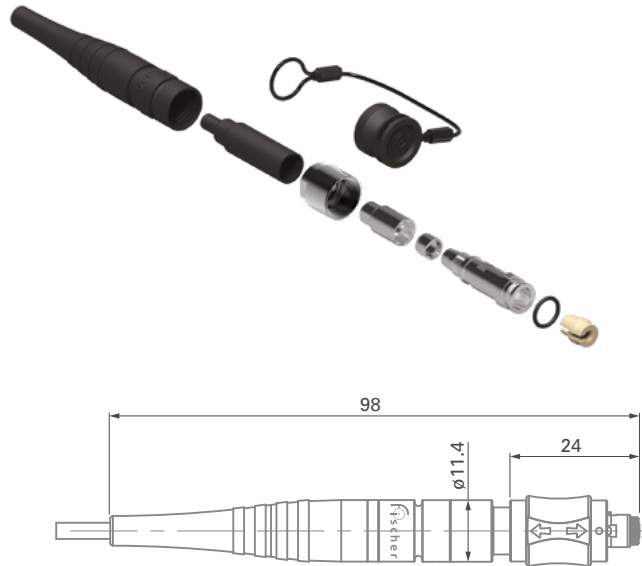
BODY STYLE



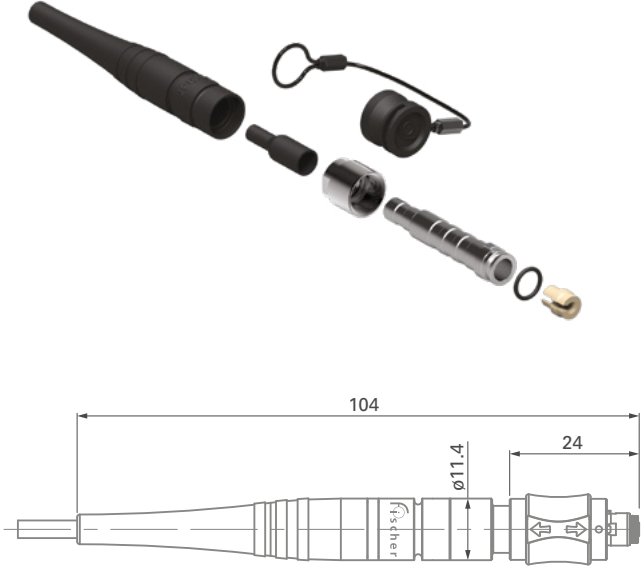
Part number	Description
FO1 P01LGR1 00A00 A 000	FO1 - P01 Plug
FO1 P01 CABLE CLAMP SET L36 D3.5 ¹⁾	FO1 - P01 Plug cable clamp set
FO1 P01 POTTING SET L41 D3.5 ¹⁾	FO1 - P01 Plug potting set

REAR ACCESSORIES

CABLE CLAMP SET



POTTING SET



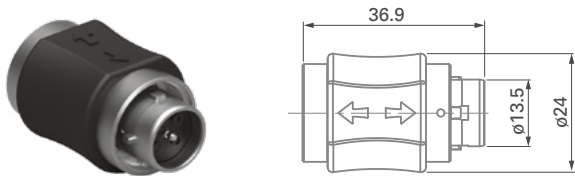
¹⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contact, termini and rear accessory

PLUGS - FO2/FO4

CABLE MOUNTED

P01

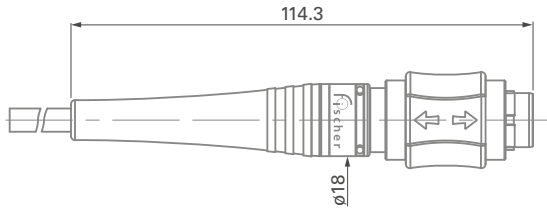
BODY STYLE



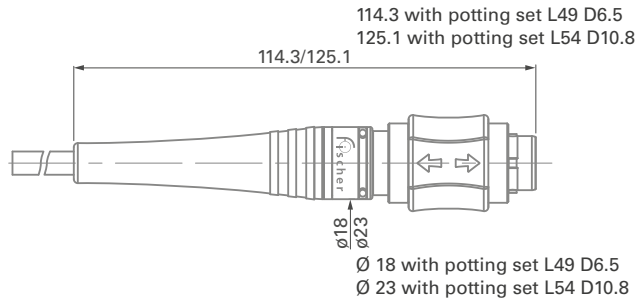
Part number	Description
FO2 P01LGR1 00A00 A 000	FO2 - P01 Plug
FO4 P01LGR1 00A00 A 000	FO4 - P01 Plug
FO2-4 P01 CABLE CLAMP SET L49 D6 ¹⁾	FO2/FO4 - P01 Plug cable clamp set
FO2-4 P01 POTTING SET L49 D6.5 ¹⁾	FO2/FO4 - P01 Plug potting set
FO2-4 P01 POTTING SET L54 D10.8 ¹⁾	FO2/FO4 - P01 Plug potting set

REAR ACCESSORIES

CABLE CLAMP SET



POTTING SET



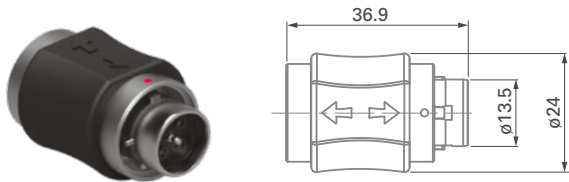
¹⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contacts, termini and rear accessory

PLUGS - FOH

CABLE
MOUNTED

P01

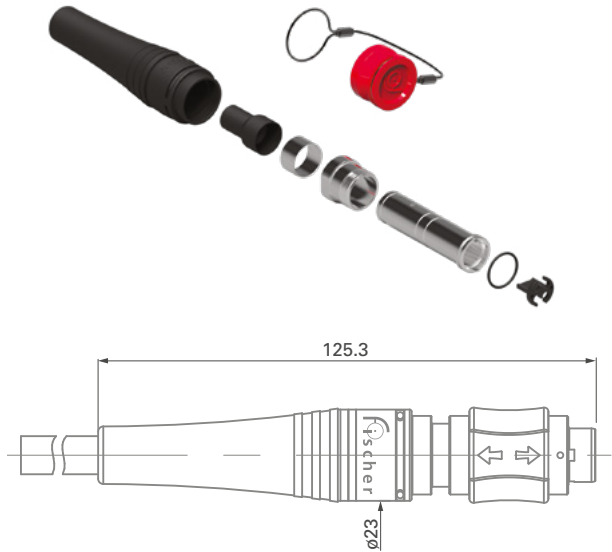
BODY STYLE



Part number	Description
FOH P01LGR1 00A00 A 000	FOH - P01 Plug
FOH P01 POTTING SET L54 D10.8 ¹⁾	FOH - P01 Plug potting set

REAR ACCESSORIES

POTTING SET



¹⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contacts, termini and rear accessory

RECEPTACLES**CABLE
MOUNTED**

Body style		R50	References to detailed information
Protection	Unsealed (IP50)		Sealing categories, page A-6
	Sealed up to IP68	●	
Locking system	Friction		Locking systems, page A-5
	Push-pull	●	
	Quick-release		
	Lanyard		
	Tamperproof		
Termination	Fiber optic termini	●	Fiber type and pin layout, page I-30
	Electrical solder contacts ¹⁾	●	
Housing color	Natural chrome	●	Technical information, page I-29
Design	Shortened body		
	Straight	●	
	Right-angle		
Rear Accessories ¹⁾	Wire sets		Rear accessories, pages I-9 to I-11
	Cable clamp set	●	
	Potting set	●	
Accessories	Cable bend reliefs		Accessories, page I-25
	Protective sleeves		
	Soft caps	●	
Size	FO1	●	Technical dimensions, page I-9 to I-11 For more information visit our website www.fischerconnectors.com/technical
	FO2/FO4	●	
	FOH	●	

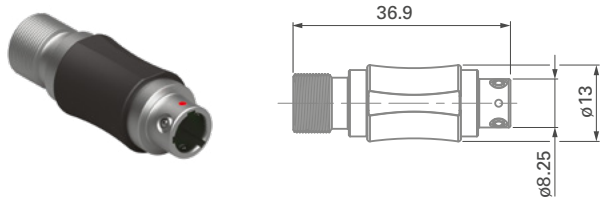
¹⁾ Please refer to configurations matrix on page I-3.

RECEPTACLES - FO1

CABLE
MOUNTED

R50

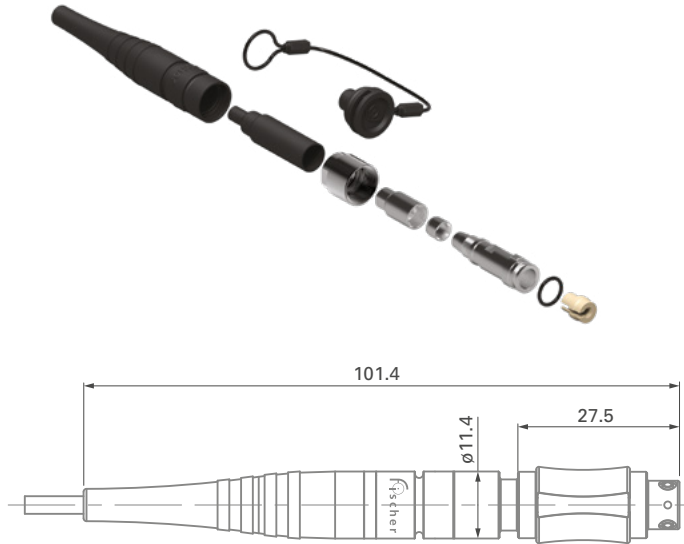
BODY STYLE



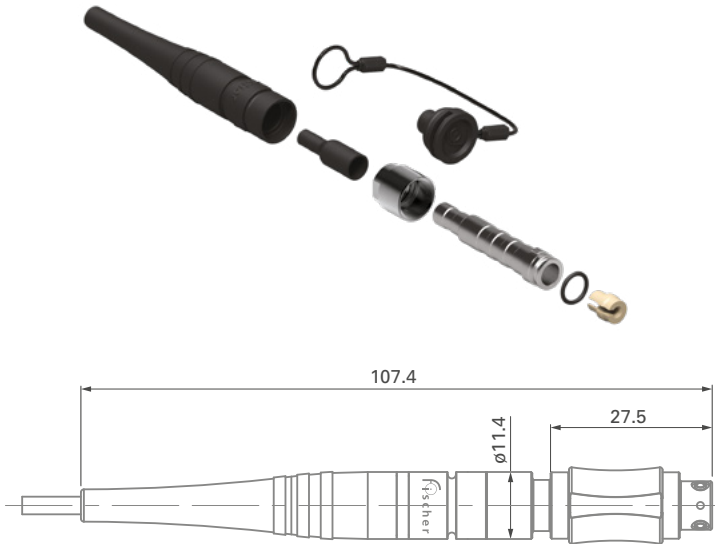
Part number	Description
FO1 R50LGR1 00A00 A 000	FO1 - R50 Receptacle
FO1 R50 CABLE CLAMP SET L36 D3.5 ¹⁾	FO1 - R50 Receptacle cable clamp set
FO1 R50 POTTING SET L41 D3.5 ¹⁾	FO1 - R50 Receptacle potting set

REAR ACCESSORIES

CABLE CLAMP SET



POTTING SET



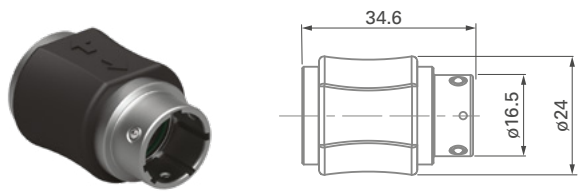
¹⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contact, termini and rear accessory

RECEPTACLES - FO2/FO4

CABLE
MOUNTED

R50

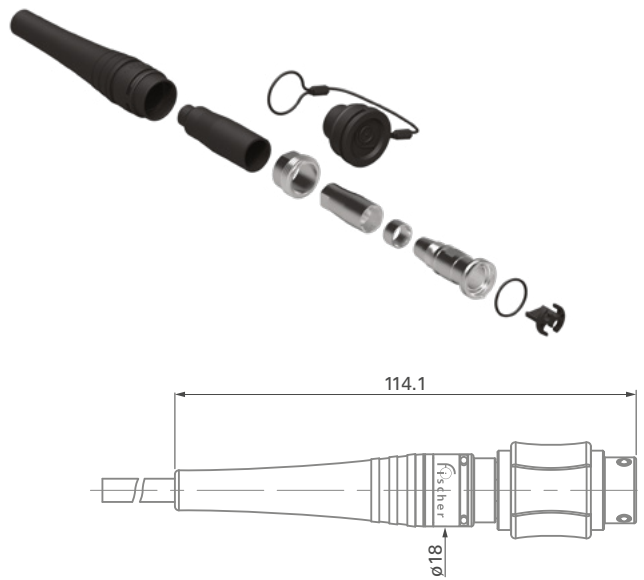
BODY STYLE



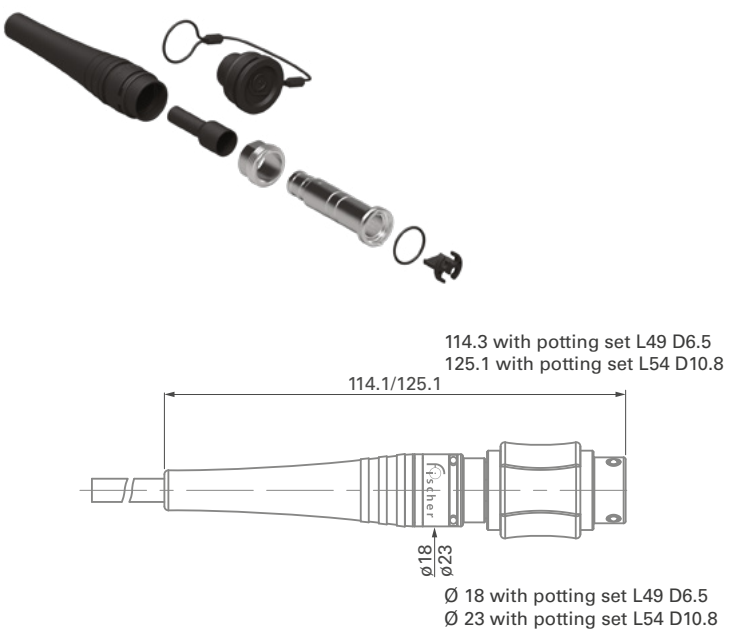
Part number	Description
FO2 R50LGR1 00A00 A 000	FO2 - R50 Receptacle
FO4 R50LGR1 00A00 A 000	FO4 - R50 Receptacle
FO2-4 R50 CABLE CLAMP SET L49 D6 ¹⁾	FO2/FO4 - R50 Receptacle cable clamp set
FO2-4 R50 POTTING SET L49 D6.5 ¹⁾	FO2/FO4 - R50 Receptacle potting set
FO2-4 R50 POTTING SET L54 D10.8 ¹⁾	FO2/FO4 - R50 Receptacle potting set

REAR ACCESSORIES

CABLE CLAMP SET



POTTING SET



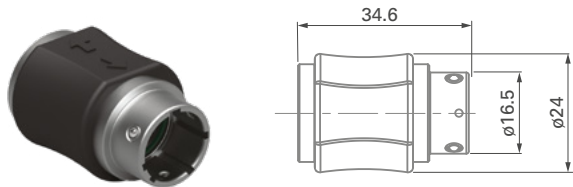
¹⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contacts, termini and rear accessory

RECEPTACLES - FOH

CABLE
MOUNTED

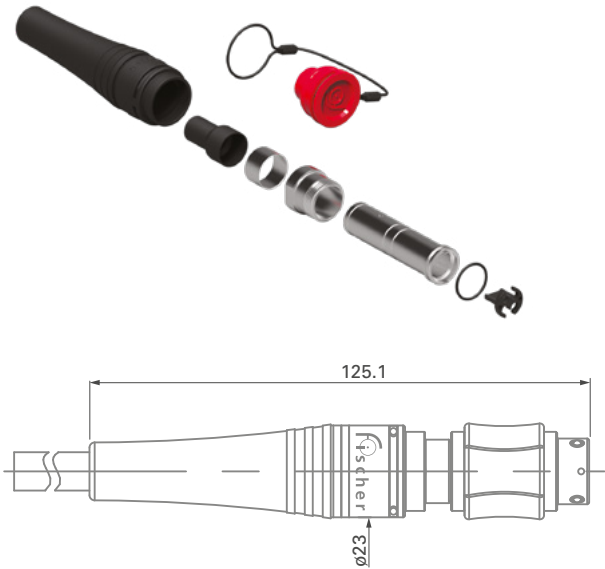
R50

BODY STYLE



Part number	Description
FOH R50LGR1 00A00 A 000	FOH - R50 Receptacle
FOH R50 POTTING SET L54 D10.8 ¹⁾	FOH - R50 Receptacle potting set

POTTING SET



¹⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contact, termini and rear accessory

RECEPTACLES

PANEL
MOUNTED

Body style		R01	R03	R13	References to detailed information
Protection	Unsealed (IP50)				Sealing categories, page A-6
	Sealed up to IP68	●	●	●	
Locking system	Friction				Locking systems, page A-5
	Push-pull	●	●	●	
	Quick-release				
	Lanyard				
	Tamperproof				
Termination	Fiber optic termini	●	●	●	Fiber type and pin layout, page I-30
	Electrical solder contacts ¹⁾	●	●	●	
Housing color	Natural chrome	●	●	●	Technical information, page I-29
Design	Shortened body				
	Straight	●	●	●	
	Right-angle				
Rear Accessories ¹⁾	Wire sets	●	●	●	Pages I-13 to I-21
	Cable clamp set	●	●	●	
	Potting set	●	●	●	
Accessories	Cable bend reliefs				Accessories, section I-25
	Protective sleeves				
	Soft caps	●	●	●	
Size	FO1	●	●	●	Technical dimensions, page I-13 to I-21 For more information visit our website www.fischerconnectors.com/technical
	FO2/FO4	●	●	●	
	FOH	●	●	●	

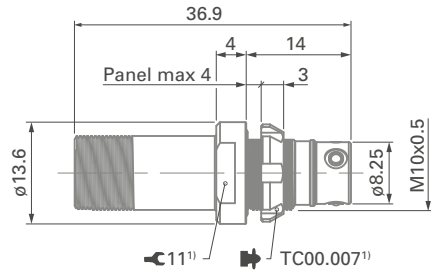
¹⁾ Please refer to configurations matrix on page I-3.

RECEPTACLES - FO1

PANEL REAR
MOUNTED

R01

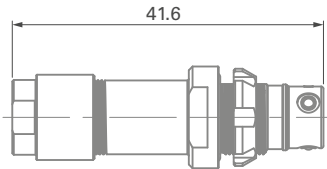
BODY STYLE



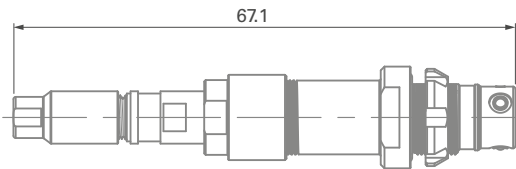
Part number	Description
FO1 R01LGR1 00A00 A 000	FO1 - R01 Receptacle
FO1 R01 WIRE SET L18 D3.5	FO1 - R01 Receptacle wire set
FO1 R01 CABLE CLAMP SET L36 D3.5 ²⁾	FO1 - R01 Receptacle cable clamp set
FO1 R01 POTTING SET L41 D3.5 ²⁾	FO1 - R01 Receptacle potting set

REAR ACCESSORIES

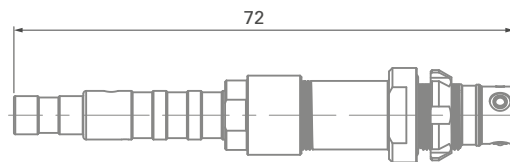
WIRE SET



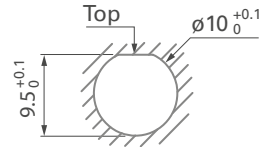
CABLE CLAMP SET



POTTING SET



PANEL CUT-OUT



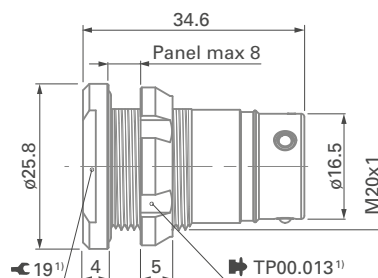
¹⁾ Torque 5.0 Nm. Torque (Nm) are recommended values that may be influenced by the quality of the panel surface. Tests have to be made to evaluate the exact values.

²⁾ The last number indicates the max compatible cable diameter in mm.

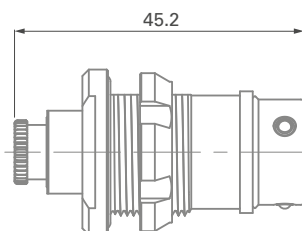
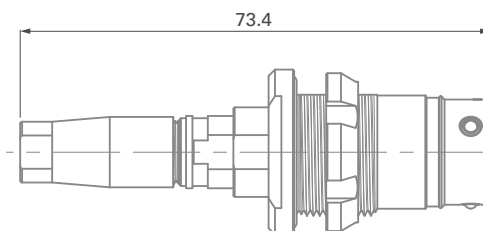
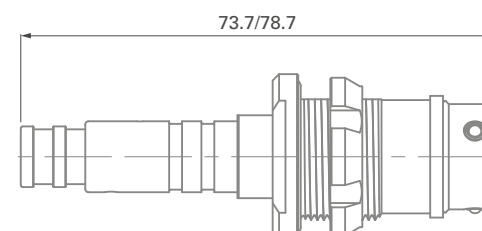
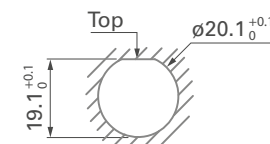
Note: indicated connector P/N = delivered without contact, termini and rear accessory

RECEPTACLES - FO2/FO4**PANEL REAR
MOUNTED****R01**

BODY STYLE



Part number	Description
FO2 R01LGR1 00A00 A 000	FO2/FO4 - R01 Receptacle
FO4 R01LGR1 00A00 A 000	FO2/FO4 - R01 Receptacle
FO2 R01 WIRE SET L20 D6.5	FO2 - R01 Receptacle wire set
FO4 R01 WIRE SET L20 D6.5	FO4 - R01 Receptacle wire set
FO2-4 R01 CABLE CLAMP SET L49 D6 2)	FO2/FO4 - R01 Receptacle cable clamp set
FO2-4 R01 POTTING SET L49 D6.5 2)	FO2/FO4 - R01 Receptacle potting set
FO2-4 R01 POTTING SET L54 D10.8 2)	FO2/FO4 - R01 Receptacle potting set

REAR ACCESSORIES**WIRE SET****CABLE CLAMP SET****POTTING SET****PANEL CUT-OUT**

73.7 with potting set L49 D6.5
78.7 with potting set L54 D10.8

¹⁾ Torque 6.5 Nm. Torque (Nm) are recommended values that may be influenced by the quality of the panel surface. Tests have to be made to evaluate the exact values.

²⁾ The last number indicates the max compatible cable diameter in mm.

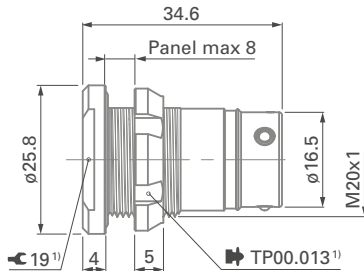
Note: indicated connector P/N = delivered without contacts, termini and rear accessory

RECEPTACLES - FOH

PANEL REAR
MOUNTED

R01

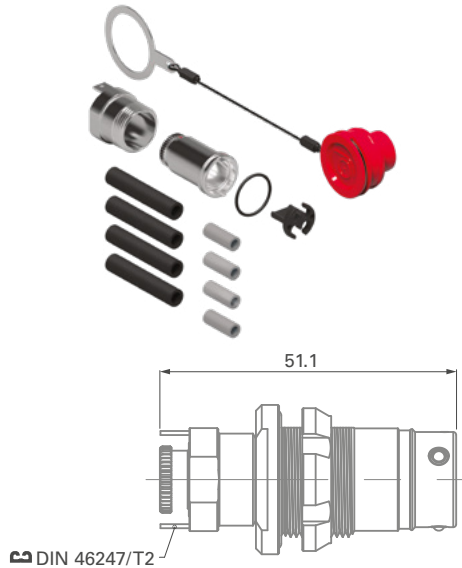
BODY STYLE



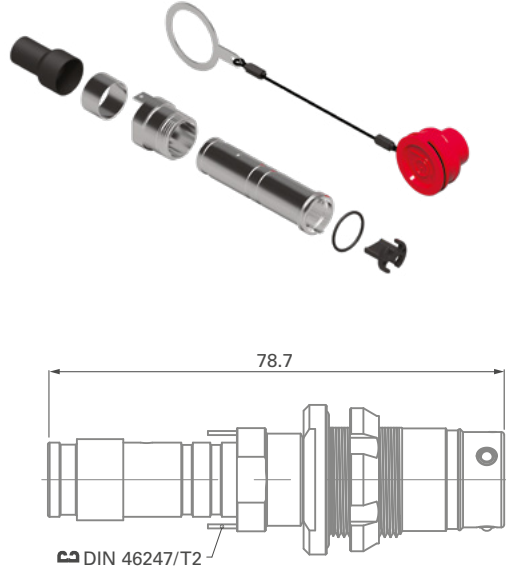
Part number	Description
FOH R01LGR1 00A00 A 000	FOH - R01 Receptacle
FOH R01 WIRE SET L26 D8	FOH - R01 Receptacle wire set
FOH R01 POTTING SET L54 D10.8 ²⁾	FOH - R01 Receptacle potting set

REAR ACCESSORIES

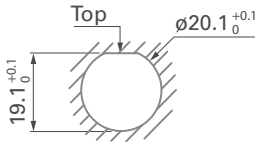
WIRE SET



POTTING SET



PANEL CUT-OUT



¹⁾ Torque 6.5 Nm. Torque (Nm) are recommended values that may be influenced by the quality of the panel surface. Tests have to be made to evaluate the exact values.

²⁾ The last number indicates the max compatible cable diameter in mm.

Note: indicated connector P/N = delivered without contacts, termini and rear accessory

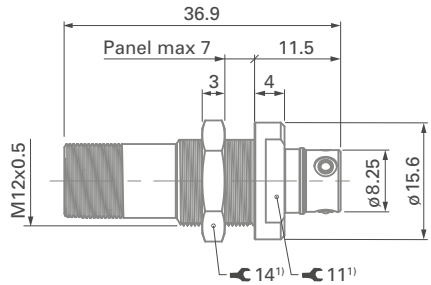
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES - FO1

PANEL FRONT
MOUNTED

R03

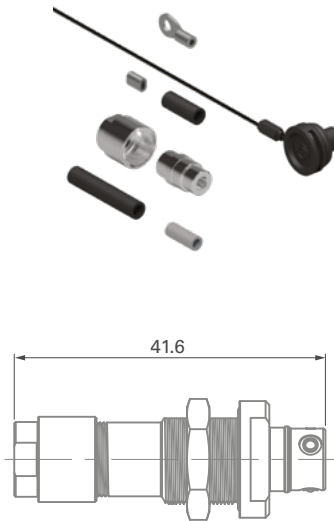
BODY STYLE



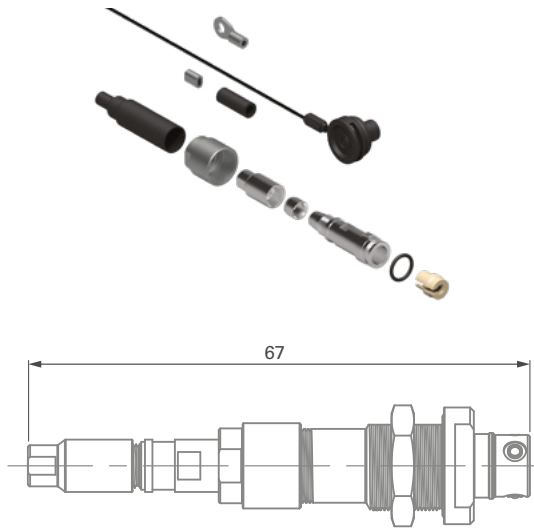
Part number	Description
FO1 R03LGR1 00A00 A 000	FO1 - R03 Receptacle
FO1 R03 WIRE SET L18 D3.5	FO1 - R03 Receptacle wire set
FO1 R03 CABLE CLAMP SET L36 D3.5 ²⁾	FO1 - R03 Receptacle cable clamp set
FO1 R03 POTTING SET L41 D3.5 ²⁾	FO1 - R03 Receptacle potting set

REAR ACCESSORIES

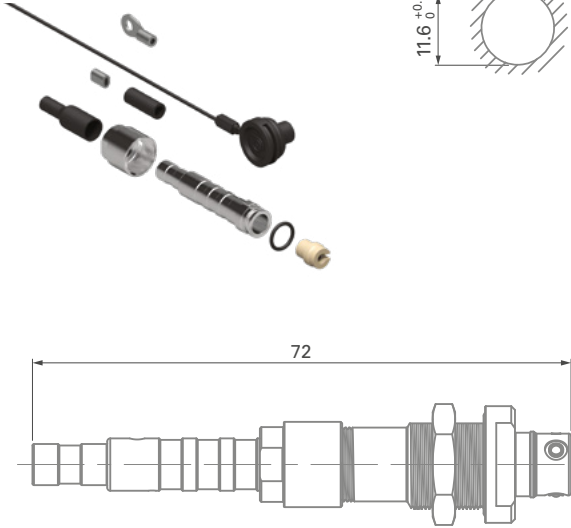
WIRE SET



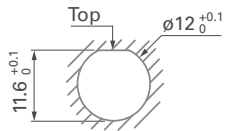
CABLE CLAMP SET



POTTING SET



PANEL CUT-OUT



¹⁾ Torque 5.0 Nm. Torque (Nm) are recommended values that may be influenced by the quality of the panel surface. Tests have to be made to evaluate the exact values.

²⁾ The last number indicates the max compatible cable diameter in mm.

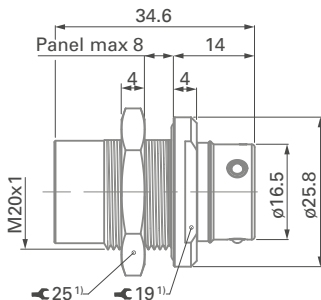
Note: indicated connector P/N = delivered without contact, termini and rear accessory

RECEPTACLES - FO2/FO4

PANEL FRONT MOUNTED

R03

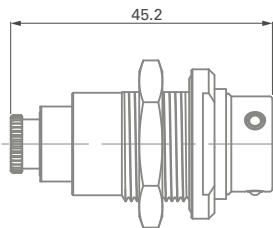
BODY STYLE



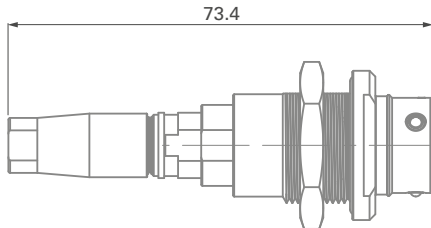
Part number	Description
FO2 R03LGR1 00A00 A 000	FO2 - R03 - R13 Receptacle
FO4 R03LGR1 00A00 A 000	FO4 - R03 - R13 Receptacle
FO2 R03-R13 WIRE SET L20 D6.5	FO2 - R03 - R13 Receptacle wire set
FO4 R03-R13 WIRE SET L20 D6.5	FO4 - R03 - R13 Receptacle wire set
FO2-4 R03-R13 CABLE CLAMP SET L49 D6.5 ²⁾	FO2/FO4 - R03 - R13 Receptacle cable clamp set
FO2-4 R03-R13 POTTING SET L49 D6.5 ²⁾	FO2/FO4 - R03 - R13 Receptacle potting set
FO2-4 R03-R13 POTTING SET L54 D10.8 ²⁾	FO2/FO4 - R03-R13 Receptacle potting set

REAR ACCESSORIES

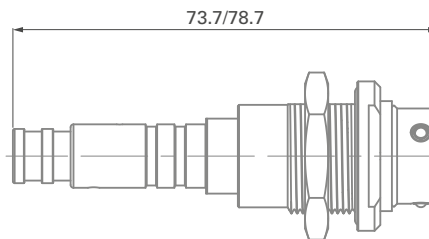
WIRE SET



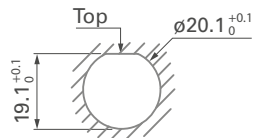
CABLE CLAMP SET



POTTING SET



PANEL CUT-OUT



¹⁾ Torque 6.5 Nm. Torque (Nm) are recommended values that may be influenced by the quality of the panel surface. Tests have to be made to evaluate the exact values.

²⁾ The last number indicates the max compatible cable diameter in mm.

Note: indicated connector P/N = delivered without contacts, termini and rear accessory

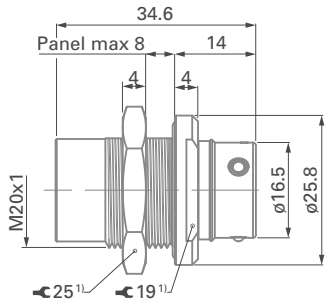
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES - FOH

PANEL FRONT
MOUNTED

R03

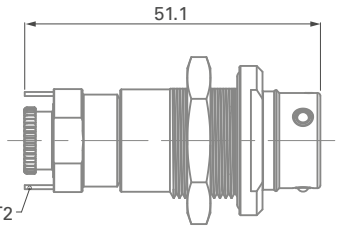
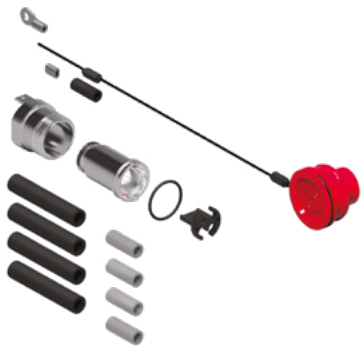
BODY STYLE



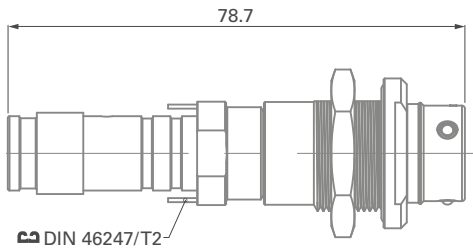
Part number	Description
FOH R03LGR1 00A00 A 000	FOH - R03 Receptacle
FOH R03-R13 WIRE SET L26 D8	FOH - R03-R13 Receptacle wire set
FOH R03 POTTING SET L54 D10.8 ²⁾	FOH - R03 Receptacle potting set

REAR ACCESSORIES

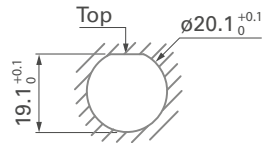
WIRE SET



POTTING SET



PANEL CUT-OUT



¹⁾ Torque 6.5 Nm. Torque (Nm) are recommended values that may be influenced by the quality of the panel surface. Tests have to be made to evaluate the exact values.

²⁾ The last number indicates the max compatible cable diameter in mm.

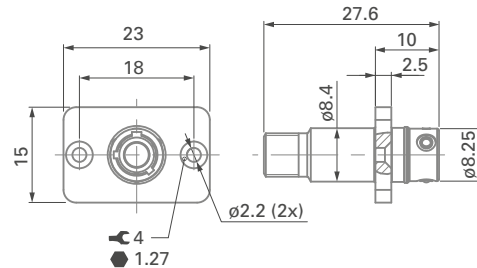
Note: indicated connector P/N = delivered without contacts, termini and rear accessory

RECEPTACLES - F01

PANEL FRONT
MOUNTED

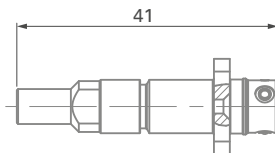
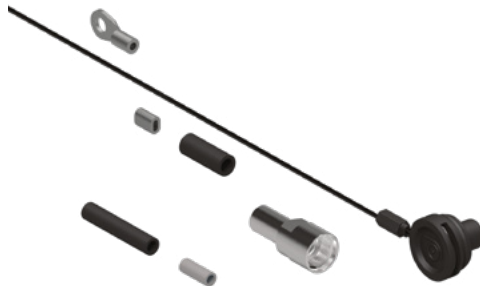
R13 - SQUARE FLANGE¹⁾

BODY STYLE

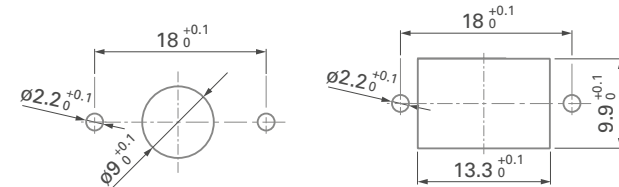


REAR ACCESSORY

WIRE SET



PANEL CUT-OUT



Compatible with above SC & LC duplex panel cut-out

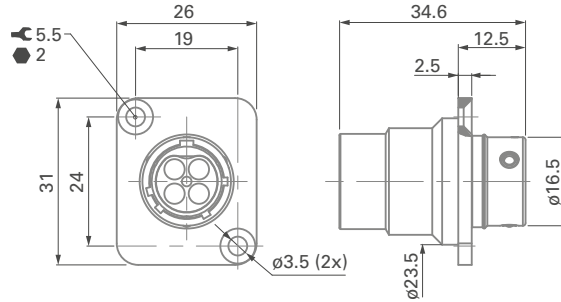
¹⁾ Due to panel mounting with screws, sealing can't be guaranteed at panel level.
Note: indicated connector P/N = delivered without contact, termini and rear accessory

RECEPTACLES - FO2/FO4

PANEL FRONT
MOUNTED

R13 - SQUARE FLANGE¹⁾

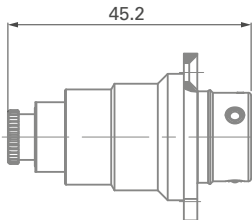
BODY STYLE



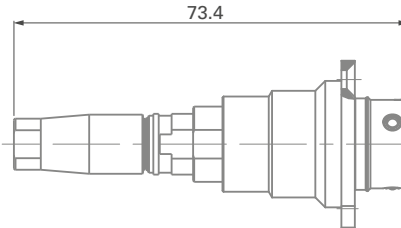
Part number	Description
FO2 R13LGR1 00A00 A 000	FO2 - R13 Receptacle
FO4 R13LGR1 00A00 A 000	FO4 - R13 Receptacle
FO2 R03-R13 WIRE SET L20 D6.5	FO2 - R03-R13 Receptacle wire set
FO4 R03-R13 WIRE SET L20 D6.5	FO4 - R03-R13 Receptacle wire set
FO2-4 R03-R13 CABLE CLAMP SET L49 D6 ²⁾	FO2/FO4 - R03-R13 Receptacle cable clamp set
FO2-4 R03-R13 POTTING SET L54 D10.8 ²⁾	FO2/FO4 - R03-R13 Receptacle potting set

REAR ACCESSORIES

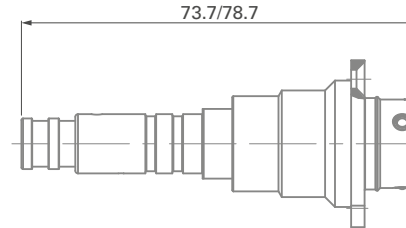
WIRE SET



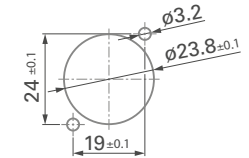
CABLE CLAMP SET



POTTING SET



PANEL CUT-OUT



73.7 with potting set L49 D6.5
78.7 with potting set L54 D10.8

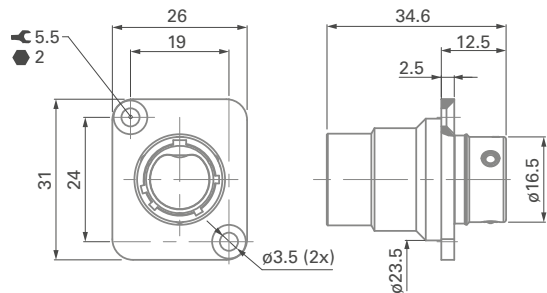
¹⁾ Due to panel mounting with screws, sealing can't be guaranteed at panel level.
²⁾ The last number indicates the max compatible cable diameter in mm.
Note: indicated connector P/N = delivered without contacts, termini and rear accessory

RECEPTACLES - FOH

PANEL FRONT
MOUNTED

R13 - SQUARE FLANGE¹⁾

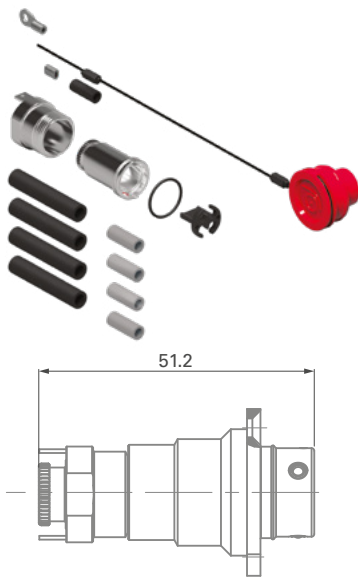
BODY STYLE



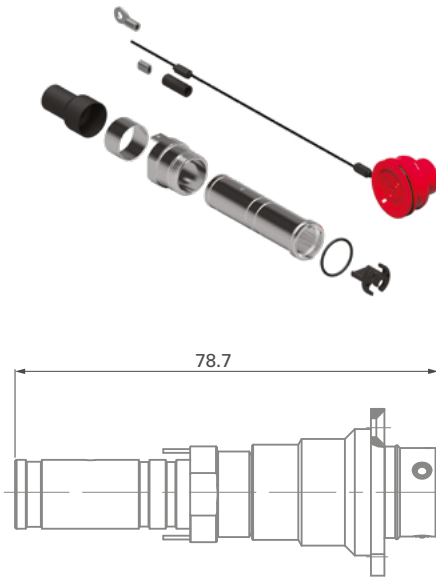
Part number	Description
FOH R13LGR1 00A00 A 000	FOH - R13 Receptacle
FOH R03-R13 WIRE SET L26 D8	FOH - R03-R13 Receptacle wire set
FOH R03-R13 POTTING SET L54 D10.8 ²⁾	FOH - R03-R13 Receptacle potting set

REAR ACCESSORIES

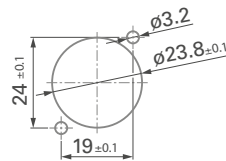
WIRE SET



POTTING SET



PANEL CUT-OUT



¹⁾ Due to panel mounting with screws, sealing can't be guaranteed at panel level.

²⁾ The last number indicates the max compatible cable diameter in mm.

Note: indicated connector P/N = delivered without contacts, termini and rear accessory

OPTICAL TERMINI AND ELECTRICAL CONTACTS

		Designation	Part Number
		Singlemode terminus	FO TERMINI SMA PC
		Multimode terminus	FO TERMINI MMA PC
		Electrical contact (FOH Only)	FO Termini EL M ø1.25 SR A

CONNECTORS

	FO Type		Housing design				Contacts			Rear accessory	Modification code
	FO		P01	L	GR	1	04	S	00	W	000
Example:	FO	4	P01	L	GR	1	04	S	00	W	000
Series											Modification code
■ FO = FiberOptic Series											■ 000 = Default
Number of channels (optic +Electric)											Rear accessory
■ 1 = Single channel											■ A = Delivered without rear accessory
■ 2 = Two channels											■ W = Delivered with wire set accessory
■ 4 = Four channels											■ C = Delivered with cable clamp set accessory
■ H = Hybrid											■ P = Delivered with potting set accessory
Body style											Number of electrical contacts (FOH only)
Plugs											■ 00 = Delivered without electrical contact
■ P01 = Cable mounted											■ 01 = Delivered with one electrical contact
Receptacles											■ 02 = Delivered with two electrical contacts
■ R01 = Panel rear mounted, circular flange											■ 03 = Delivered with three electrical contacts
■ R03 = Panel front mounted, circular flange											■ 04 = Delivered with four electrical contacts
■ R13 = Panel front mounted, rectangular flange											
■ R50 = Cable mounted											
Locking system											Optical contact type
■ L = Push-pull locking system											■ A = Delivered without optical terminus
Housing color											■ S = Single-mode optical terminus
■ GR = Grey											■ M = Multi-mode optical terminus
Keying code											Number of optical termini
■ 1 = Code 1											■ 00 = Delivered without optical terminus
											■ 01 = Delivered with one optical terminus
											■ 02 = Delivered with two optical termini
											■ 03 = Delivered with three optical termini
											■ 04 = Delivered with four optical termini

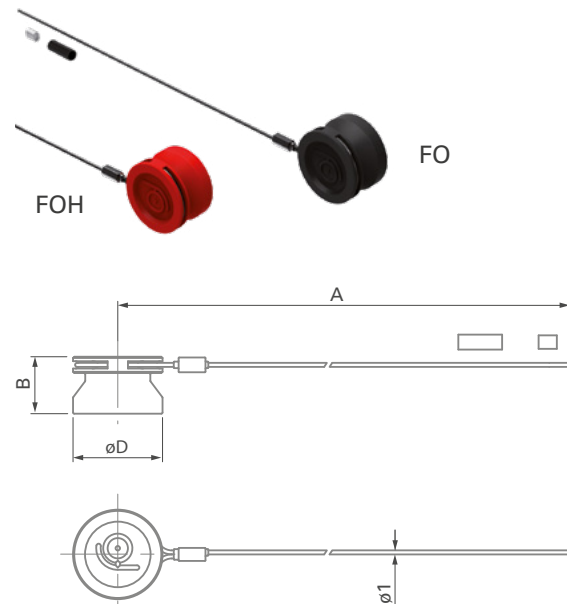
CABLED PRODUCTS

Example:	Nbr.		End A			Cable					End B			Options		
	FO	2	P01	P	0	S9	002.	0	00.	0	P01	P	0	A	A	A
Series ■ FiberOptic = FO ■ FiberOptic hybrid = FOH																
Fiber count ■ 1 = Single channel ■ 2 = Two channels ■ 4 = Four channels ■ 2-2 = Hybrid 2+2																
A-End connector body style Plugs ■ P01 = Cable mounted plug Receptacles ■ R01 = Panel rear mounted, circular flange ■ R03 = Panel front mounted, circular flange ■ R13 = Panel front mounted, rectangular flange ■ R50 = Cable mounted Other connectors ¹⁾ ■ CNA = Free-end ■ CLC = LC ■ CSC = SC ■ CFC = FC ■ CST = ST																
Cable fixture ■ N = None (not cable potting or clamping) ■ C = Cable clamp ■ P = Potting																
Contact polishing Single-mode ■ 0° = PC ■ 8° = APC Multi-mode ■ 0° = PC																
Fiber type ■ S9 = Single-mode 9/125 ■ M5 = Multi-mode 50/125 ■ M6 = Multi-mode 62.5/125																
Total length L [meters]																
Break-out length L_B [meters] <i>for breakout & sealed (if applicable / min. 0.3, max. 1.0)</i>																
Supply source ■ A = OCC ■ B = DRAKA ■ C = LEONI ■ D = BRUGG ■ E = KAIPHONE ■ Z = Customer project																
Application environment ■ A = Indoor / outdoor ■ B = Outdoor rodent ■ C = Outdoor armored ■ Z = Specific / custom																
Packaging ■ A = Cardboard box ■ B = Bag ■ R = Reel <i>A = Up to 20 meters length (10 meters for rodent and armored cables). From 20.1 meters length (10 meters for rodent and armored cables), select B. B = Available from 20.1 to 49.9 meters. From 50 meters length, select R. R = from 50 meters length, cable assemblies are delivered on a reel.</i>																
Contact polishing Single-mode ■ 0° = PC ■ 8° = APC Multi-mode ■ 0° = PC No connector on end B ■ Z = Not applicable																
Cable fixture ■ N = None (not cable potting nor clamping) ■ C = Cable clamp ■ P = Potting																
B-End connector body style Plugs ■ P01 = Cable mounted plug Receptacles ■ R01 = Panel rear mounted, circular flange ■ R03 = Panel front mounted, circular flange ■ R13 = Panel front mounted, rectangular flange ■ R50 = Cable mounted Other connectors ■ CNA = Free-end ■ CLC = LC ■ CSC = SC ■ CFC = FC ■ CST = ST																

¹⁾ Only for reel packaging option (R).

SOFT CAPS

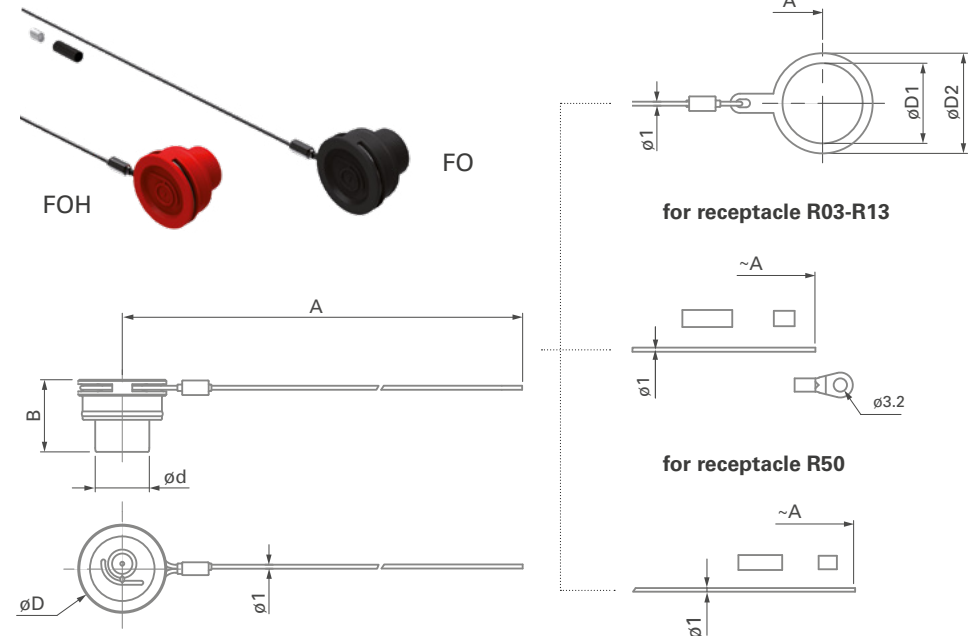
FOR PLUGS



Body size & style		Part number	A	B	øD
FO1	P01	FOCP06C 1B2 A120	120	10.5	13
FO2/4	P01	FOCP14C 1B2 A150	150	14.0	22
FOH	P01	FOHCP14C 1B2 A150	150	14.0	22

Crimp ferrule and heat shrink tube are included.

FOR RECEPTACLES



Body size & style		Part number	A	B	ød	øD	øD1	øD2
FO1	R01	FOCR06P 1B2 A70	70	11.5	6.0	13	10	14
	R03-R13	FOCR06P 1B2 E150	150				-	-
	R50	FOCR06C 1B2 A120	120				-	-
FO2/4	R01	FOCR14P 1B2 A110	110	14.0	13.5	22	20	25
	R03-R13	FOCR14P 1B2 E150	150	14.0	13.5	22	-	-
	R50	FOCR14C 1B2 A150					-	-
FOH 2-2	R01	FOHCR14P 1B2 A110	110	14.0	13.5	22	20	25
	R03-R13	FOHCR14P 1B2 E150	150	14.0	13.5	22	-	-
	R50	FOHCR14C 1B2 A150					-	-

All dimensions and images shown are in millimeters and are for reference only.

DAISY CHAINING



Fiber type	Fiber count	Part number
SM 9 (G657.A1)	2	FO2 DC 0 S9 AAA
	4	FO4 DC 0 S9 AAA
	Hybrid	FOH2-2 DC 0 S9 AAA
MM 50 (OM3)	2	FO2 DC 0 M5 AAA
	4	FO4 DC 0 M5 AAA
	Hybrid	FOH2-2 DC 0 M5 AAA
MM 62.5 (OM1+)	2	FO2 DC 0 M6 AAA
	4	FO4 DC 0 M6 AAA
	Hybrid	FOH2-2 DC 0 M6 AAA
Pin layout	Applies to all configurations	1○————○1 2○————○2 3○————○3 4○————○4

LOOPBACK



Fiber type	Fiber count	Part number
SM 9 (G657.A1)	4	FO4 LB 0 S9 AAA
MM 50 (OM3)	4	FO4 LB 0 M5 AAA
MM 62.5 (OM1+)	4	FO4 LB 0 M6 AAA
Pin layout	Applies to all configurations	1○ 2○ 3○ 4○

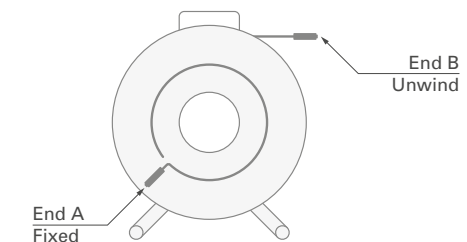
The use of caps is recommended for maximum robustness during handling.

PRE-CONFIGURED FIBEROPTIC REELS



		50 meter reels	100 meter reels
Fiber type	Fiber count	Part number	Part number
SM 9 (G657.A1)	1	FO1 P01P0 S9-050.0-00.0 P01P0 RAA	FO1 P01P0 S9-100.0-00.0 P01P0 RAA
	2	FO2 P01P0 S9-050.0-00.0 P01P0 RAC	FO2 P01P0 S9-100.0-00.0 P01P0 RAC
	4	FO4 P01P0 S9-050.0-00.0 P01P0 RAC	FO4 P01P0 S9-100.0-00.0 P01P0 RAC
	Hybrid	FOH2-2 P01P0 S9-050.0-00.0 P01P0 RAC	FOH2-2 P01P0 S9-100.0-00.0 P01P0 RAC
MM 50 (OM3)	1	FO1 P01P0 M5-050.0-00.0 P01P0 RAA	FO1 P01P0 M5-100.0-00.0 P01P0 RAA
	2	FO2 P01P0 M5-050.0-00.0 P01P0 RAC	FO2 P01P0 M5-100.0-00.0 P01P0 RAC
	4	FO4 P01P0 M5-050.0-00.0 P01P0 RAC	FO4 P01P0 M5-100.0-00.0 P01P0 RAC
	Hybrid	FOH2-2 P01P0 M5-050.0-00.0 P01P0 RAC	FOH2-2 P01P0 M5-100.0-00.0 P01P0 RAC
		150 meter reels	200 meter reels
Fiber type	Fiber count	Part number	Part number
SM 9 (G657.A1)	1	FO1 P01P0 S9-150.0-00.0 P01P0 RAA	FO1 P01P0 S9-200.0-00.0 P01P0 RAA
	2	FO2 P01P0 S9-150.0-00.0 P01P0 RAC	FO2 P01P0 S9-200.0-00.0 P01P0 RAC
	4	FO4 P01P0 S9-150.0-00.0 P01P0 RAC	FO4 P01P0 S9-200.0-00.0 P01P0 RAC
	Hybrid	FOH2-2 P01P0 S9-150.0-00.0 P01P0 RAC	FOH2-2 P01P0 S9-200.0-00.0 P01P0 RAC
MM 50 (OM3)	1	FO1 P01P0 M5-150.0-00.0 P01P0 RAA	FO1 P01P0 M5-200.0-00.0 P01P0 RAA
	2	FO2 P01P0 M5-150.0-00.0 P01P0 RAC	FO2 P01P0 M5-200.0-00.0 P01P0 RAC
	4	FO4 P01P0 M5-150.0-00.0 P01P0 RAC	FO4 P01P0 M5-200.0-00.0 P01P0 RAC
	Hybrid	FOH2-2 P01P0 M5-150.0-00.0 P01P0 RAC	FOH2-2 P01P0 M5-200.0-00.0 P01P0 RAC
		300 meter reels	450 meter reels
Fiber type	Fiber count	Part number	Part number
SM 9 (G657.A1)	1	FO1 P01P0 S9-300.0-00.0 P01P0 RAA	FO1 P01P0 S9-450.0-00.0 P01P0 RAA
	2	FO2 P01P0 S9-300.0-00.0 P01P0 RAC	FO2 P01P0 S9-450.0-00.0 P01P0 RAC
	4	FO4 P01P0 S9-300.0-00.0 P01P0 RAC	FO4 P01P0 S9-450.0-00.0 P01P0 RAC
	Hybrid	FOH2-2 P01P0 S9-300.0-00.0 P01P0 RAC	-
MM 50 (OM3)	1	FO1 P01P0 M5-300.0-00.0 P01P0 RAA	FO1 P01P0 M5-450.0-00.0 P01P0 RAA
	2	FO2 P01P0 M5-300.0-00.0 P01P0 RAC	FO2 P01P0 M5-450.0-00.0 P01P0 RAC
	4	FO4 P01P0 M5-300.0-00.0 P01P0 RAC	FO4 P01P0 M5-450.0-00.0 P01P0 RAC
	Hybrid	FOH2-2 P01P0 M5-300.0-00.0 P01P0 RAC	-

Assembled on Schill drum with OCC cable (FO1) and LEONI cable (FO2, FO4, FOH 2-2).



**COLOR CODING
SILICONE RING****FO1 – FOCR06**

- ☐ Beige ☐ Red
☐ Blue ☐ Green

FO2/4/H – FOCR14

- ☐ Beige ☐ Red
☐ Blue ☐ Green

**OPEN
SPANNER****FO1**

- ☐ TX00.004 ☐ TX00.014
☐ TX00.011

FO2/4/H

- ☐ TX00.019
☐ TX00.025

**HEXAGON
SPANNER****FO1 - R13**

- ☐ TX00.384

**NUT
DRIVER****FO1**

- ☐ TC00.007

FO2/4/H

- ☐ TP00.013

**SLEEVES HOLDER
MATE ADAPTER****FO1**

- ☐ FOP06 Sleeve Holder

**FO2/FO4**

- ☐ FOP14 Sleeve Holder

**PANEL
SEAL****FO1**

- ☐ FO R13 Panel Seal FO1

**FO2/4/H**

- ☐ FO R13 Panel Seal FO2/4/H

**TELECOM MATE
ADAPTER**

- ☐ LC Adapter SM/APC
☐ LC Adapter SM/UPC
☐ LC Adapter MM/UPC



- ☐ SC Adapter SM/APC
☐ SC Adapter SM/UPC
☐ SC Adapter MM/UPC



- ☐ FC Adapter SM/APC
☐ FC Adapter SM-MM



- ☐ ST Adapter SM-MM

**PRE-CABLED
REEL***

- ☐ GT235.RM
☐ GT310.RM
☐ GT380.RMFK
☐ GT450.RMFK
☐ HT582.RM

**WEDGE CLAMP
JAWS**

- ☐ Wedge Clamp
Black Jaws

**FIBER OPTIC
CLEANING KIT**

- ☐ **FO Cleaning Kit (complete kit)**

Cleaning kit components

- ☐ Laser pen ☐ Precision tweezers
☐ Laser pen adapter ☐ 50 alcohol wipes
☐ IBC brand cleaner H125

* Pre-configured reels can be found on page I-27.

Reel selection can vary following cable choice and length.

Contact your local sales for details or visit: www.fischerconnectors.com/fiberoptic

MATERIAL & SURFACE FINISH

Metal components	Material		Finish	
	Designation ISO	Standard	Designation	Standard
Housing, nut	Brass CuZn39Pb3	CW614N	Chrome over Nickel	SAE-AMS 2460
		UNS C 38500		
Back nut (plug) FO1	Brass CuZn39Pb3	CW614N	Anthracite over Nickel	SAE-AMS 2460
		UNS C 38500		
Back nut (plug) FO2, FO4, FOH	Brass CuZn39Pb3	CW614N	Nickel	SAE-AMS-QQ-N-290
		UNS C 38500		SAE-AMS 2404
Electrical contact	Brass CuZn39Pb3	CW614N UNS C 38500	1 µm Gold over Nickel	MIL-DTL-45204D Type 1 + ASTM B488 / SAE-AMS- QQ-N-290 / SAE-AMS 2404
Shell contact	Stainless steel	X5CrNiMo18-10 (1.4401)	-	-
Spring	Stainless steel	X10CrNi18-8 (1.4310)	-	-
Mantel clip	Stainless steel	X5CrNiMo18-10 (1.4401)	-	-
Sleeve holder (plug) FO1	Brass CuZn39Pb3	CW614N	Nickel	SAE-AMS-QQ-N-290
		UNS C 38500		SAE-AMS 2404
Sleeve holder (center pin) FO2, FO4, FOH	Stainless steel	X8CrNiS18-9 (1.4305)	-	-
Locking balls	Stainless steel	X46Cr13 (1.4034)	-	-

Non-metallic components	Material	Flammability
Ferrules & sleeves	Zirconia	-
Contact housing	LCP	UL 94 V-0
Contact block & sleeve holder	PBT	UL 94 V-0
	PEEK	-
Mantel ring	PTFE	UL 94 V-0
O-rings	FPM (Viton®)	-
	NBR (Nitrile)	-
Sealant material	Epoxy compound	-
Cable strain relief	TPE	UL 94 HB
Caps	TPE	UL 94 HB
Locking protection sleeve	TPE	UL 94 HB

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing mated	IP68; 2 m submersion for 24 hours ¹⁾	IEC 60529
Sealing unmated	IP67 ¹⁾	IEC 60529
Operating temperature range	-40 °C to +85 °C (cable dependent)	IEC 61300-2-22
Vibration	Sinusoidal, 10 - 55 Hz, 3 axes, 0.75 mm amplitude (max 10 g) ¹⁾	IEC 61300-2-1
Shock	100 g ¹⁾	IEC 61300-2-9
Salt mist	1000 hours, 5% salt solution, 35 °C ^{1) 2)}	IEC 61300-2-26
Mating durability	1000 mating cycles ^{1) 3)}	IEC 61300-2-2

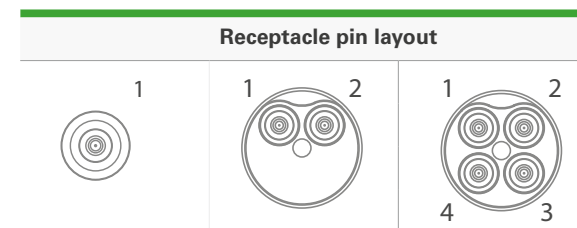
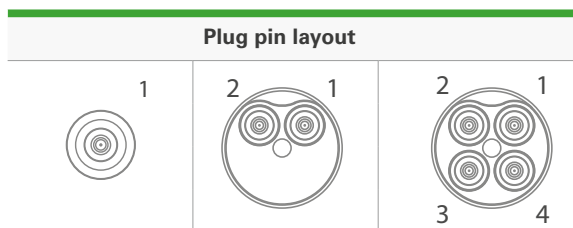
¹⁾ Exceeds IEC 61753-1 Cat.E Extreme Environment. Fischer Connectors can offer FO cable assemblies that are sealed to IP68 deeper than 2 m on request.

²⁾ Connector must be mated

³⁾ Recommended cleaning every 50 cycles.

FIBER TYPE AND PIN LAYOUT

Contact type		Fiber standards
Single-mode 9/125	UPC	G.657.A1
Single-mode 9/125	APC	
Multi-mode 50/125	-	OM3
Multi-mode 62.5/125	-	OM1 / OM1+



OPTICAL DATA

Characteristic	Performance		Standard
Insertion loss	SM and MM	≤0.20 dB mean	IEC 61300-3-34 Random mated
		≤0.45 dB max for >97% of samples	
		≤0.2 dB change during and after testing	IEC 61300-3-3
Return loss	SM UPC	≥50 dB	IEC 61300-3-6 Random mated
	SM APC	≥70 dB (mated) and ≥50 dB (unmated)	

ELECTRICAL DATA - FOH 2-2

Characteristic	Performance	Standard
Number of contacts	2 contacts, ground by shell	-
Current	10 [A] ¹⁾	IEC 60512-5-2-5b
Rated voltage	400 [V] r.m.s. ²⁾	EIA-364-20-B
Contact resistance (power contact)	< 10 mΩ	IEC 60512-2-1, Test 2a
Contact resistance (ground contact)	< 50 mΩ	IEC 60512-2-1, Test 2a
Insulation resistance	> 10 ¹⁰ Ω	IEC 60512-3-1-3a Method C
Contact termination	Solder	-
Wire size	AWG17 / 1 mm ²	-
Test voltage AC	1.5 [kV] r.m.s	IEC 60512-4-1 Test 4a
Test voltage DC	2.8 [kV]	IEC 60512-4-1 Test 4a

¹⁾ Current per contact at 40°C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. Please refer to section A-12 to determine the maximum operating current.

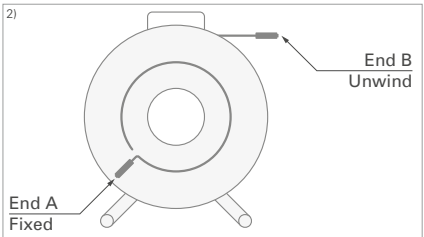
²⁾ Recommended operating voltage at sea level measured according to IEC 60664-1. Please refer to A-11

CONFIGURE YOUR SOLUTION

☐ **Quantity** - Please use one request form per cable assembly type

Cable assembly types		
	End A	End B
☐ Sealed patch cord		
☐ Receptacle		
☐ Sealed receptacle		
☐ Sealed breakout		
☐ Sealed single Fiber		

Drawings are for reference only. Available for FO1, FO2, FO4 and FOH 2-2



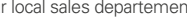
**DOWNLOAD
REQUEST QUOTE FORM**

End A	Assembly	End B
FiberOptic connectors	Total length L_{tot}¹⁾ <i>end-to-end total</i> <i>(min. 0.5 except receptacles)</i>	FiberOptic connectors
☐ P01 - Plug	☐ 1 meter	☐ P01 - Plug
☐ R50 - Receptacle cable mounted	☐ 2 meters	☐ R50 - Receptacle cable mounted
☐ R01 - Receptacle panel rear mounted	☐	☐ R01 - Receptacle panel rear mounted
☐ R03 - Receptacle panel front mounted		☐ R03 - Receptacle panel front mounted
☐ R13 - Receptacle panel square flange	Breakout length L_b¹⁾ <i>for breakout & sealed</i> <i>(if applicable / min. 0.3, max. 1.0)</i>	☐ R13 - Receptacle panel square flange
☐ CNA - Free end No Connector ²⁾	☐ 0.5 meter	☐ CNA - Free end No Connector
	☐ 1 meter	
Telecom connector ²⁾		Telecom connector
☐ LC ☐ SC	☐	☐ LC ☐ SC
☐ FC ☐ ST		☐ FC ☐ ST
	Short length receptacles <i>For receptacles < 0.5 meters</i> <i>900 μm buffered fibers wires</i>	
Contact End-face <i>Available for SM only</i>	<i>For receptacles $\geq$ 0.5 meters</i> <i>2.0 mm tight buffered wires</i>	Contact End-face <i>Available for SM only</i>
☐ 0° PC ☐ 8° APC		☐ 0° PC ☐ 8° APC

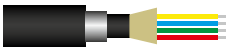
¹⁾ Cable length in 0.1 meter units only.
Cable length tolerance according IPC-WHMA-A-620.
²⁾ Only for reel packaging option (R).

CHOOSE YOUR CABLE

INDOOR/OUTDOOR

Supplier Brand	Fiber Count	SM 9/125 G.657.A1	MM 50/125 OM3	MM 62.5/125 OM1 /OM1+	
OCC	1	☐	☐	☐	
	2	☐	☐	☐	
	4	☐	☐	☐	
LEONI	2	☐	☐	☐	
	4	☐	☐	☐	
LEONI	Hybrid 2+2	☐	☐	☐	

RODENT PROOF

Supplier Brand	Fiber Count	SM 9/125 G.657.A1	MM50/125 OM3	MM 62.5/125 OM1 /OM1+	
LEONI Glass Fiber	2	☐	☐	☐	
	4	☐	☐	☐	
METAL ARMORED					
KAIPHONE	1	☐	☐	☐	
BRUGG	2	☐	☐	☐	
	4	☐	☐	☐	

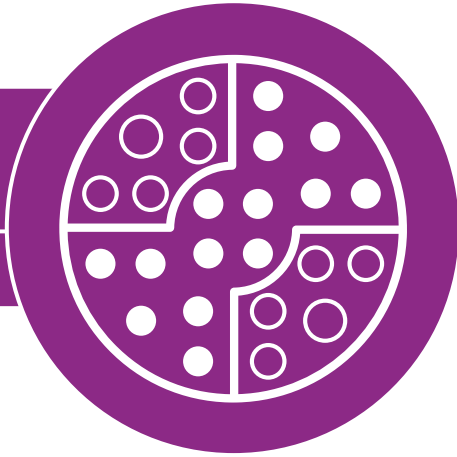
See our Cable Specifications for detailed information.

☐ Available ☐ Available under special lead time- please contact your local sales departement for details.

Outdoor cable features	OCC		LEONI	LEONI	KAIPHONE	BRUGG
Available for	FO1	FO2, FO4	FO2, FO4	FO2, FO4	FO1	FO2, FO4
Best for	Premium application		High load application	Rodent proof	Metal armored	Metal armored
	- Overall ruggedness - Easy deployment - High end tactical cable		- High load resistance - Easy deployment - High end tactical cable	- Semi-static applications - Easy deployment - Dielectric rodent protection - High flexibility	- High rodent protection - Static & deployable applications - Ultra-light armored technology - Sensing applications	- High rodent protection - Static & deployable applications - Self supporting applications - Ultra-light armored technology - Direct burial
Technology	- Tight buffered fibers - Aramid yarn - PUR jacket		- Tight buffered fibers - Aramid yarn - PUR jacket	- Tight buffered fibers - Aramid yarn / - PUR double skin jacket	- Stainless steel loose tube - Aramid yarn - LDPE jacket	- Stainless steel loose tube - Stainless steel yarn - PA Jacket
Outer diameter	2.9 mm	5.5 mm	5.5 mm	9.4 mm	3.0 mm	3.8 mm
Weight	8 kg/km	27 kg/km	28 kg/km	105 kg/km	18 kg/km	25 kg/km
Operating tensile load	300 N	600 N	1500 N	2000 N	300 N	900 N
Crush resistance	500 N/cm	1800 N/cm	800 N/cm	800 N/cm	300 N/cm	800 N/cm
Min. bend radius	1.5 cm	3.3 cm	5.5 cm	9.4 cm	3.0 cm	5.7 cm
Operating temperature	-40 °C to +85 °C		-55 °C to +85 °C	-55 °C to +85 °C	-40 °C to + 85 °C	-40 °C to + 70 °C

J

CHAPTER



FISCHER MINIMAX™ SERIES

HIGH-DENSITY MINIATURIZATION | HIGH-SPEED DATA TRANSFER | RELIABILITY

KEY FEATURES

- Signal and Power
- Designed and tested to high-speed data transfer protocols
- IP68 sealed to -20m | 24h



MINIMAX

MINIMAX



PLUGS



CABLE MOUNTED

- Body styles (MP11-L/S/Q)..... J-7
- Technical dimensions J-8
- Dimensions of overmolding..... J-9

RECEPTACLES



CABLE MOUNTED

- Body styles (MR50-L/S/Q) J-10
- Technical dimensions J-11
- Dimensions of overmolding..... J-9



PANEL REAR MOUNTED

- Body styles (MR11-L/S/Q; MR12-L/S/Q) J-12
- Technical dimensions J-13

FOR ALL MINIMAX

- Features..... J-3
- Body styles & technical dimensions J-7
- Electrical & contact configurations J-16
- Mechanical coding..... J-17
- PCB hole layout J-18
- Part numbering J-22
- Accessories J-23
- Tooling J-25
- Technical information..... J-26

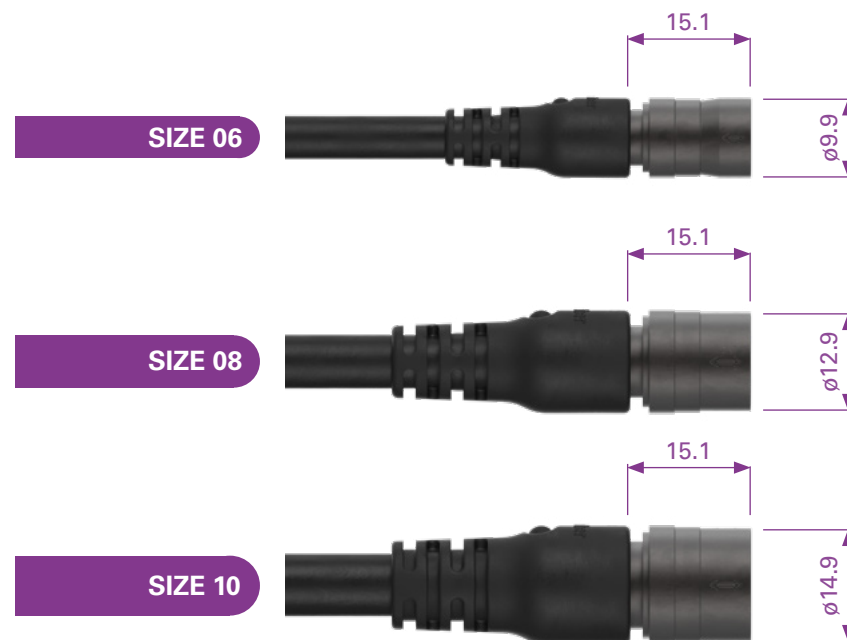
This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

HIGH-DENSITY MINIATURIZATION

- Unique combinations of signal and power
- Replace multiple large connectors with fewer and smaller ones
- Combine multiple protocols into one connector

SIZE COMPARISON 1:1

SIZE 06, 08 AND 10



UP TO 45% SMALLER

SIZE 08

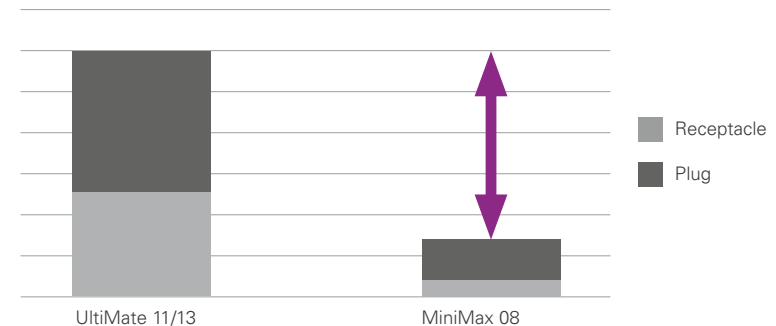
COMPARED TO STANDARD RECEPTACLES
WITH SIMILAR NUMBER OF CONTACTS



UP TO 75% LIGHTER

SIZE 08

PLUGS & RECEPTACES WEIGHT COMPARISON
WITH SIMILAR NUMBER OF CONTACTS



All dimensions and images shown are in millimeters and are for reference only.

HIGH-SPEED DATA TRANSFER



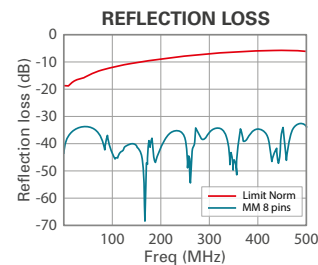
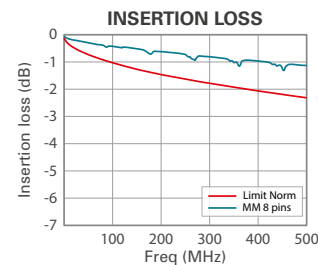
		Size 06-4 pins	Size 06-7 pins	Size 06-12 pins	Size 08-8 pins	Size 08-09 pins	Size 08-19 pins	Size 08-19 pins	Size 08-24 pins	Size 10-12 pins	Size 10-30 pins
USB 2.0		YES	YES	YES	YES	YES	YES	-	YES	YES	YES
USB 3.2 GEN 1 (5 Gbit/s)		-	-	-	-	YES	-	-	-	YES	-
USB 3.2 GEN 2 (10 Gbit/s)		-	-	-	-	YES	-	-	-	YES	-
ETHERNET (5 Gbit/s)		-	-	YES*	YES	-	-	-	-	-	-
Standard audio/video protocol (10.2 Gbit/s) (18.0 Gbit/s)		-	-	-	-	-	YES* -	YES YES	-	-	-
Single pair Ethernet (1 Gbit/s)		YES	-	-	-	-	-	-	-	-	-

* Application dependent
Note that for USB 3.2 the full spec is set with 1 m cable

ETHERNET SIZE 08 | 8 PINS

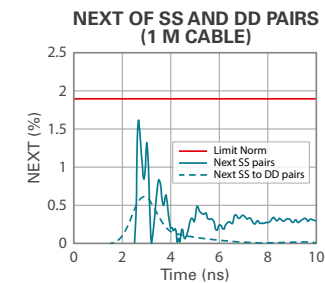
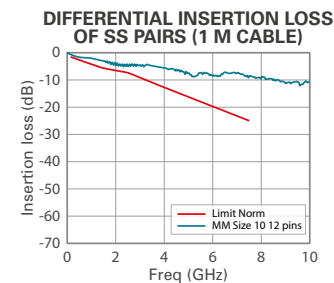
A unique robust and sealed miniature connector for Ethernet applications in harsh environments.

- AWG24, compatible with long range standard Ethernet cables
- Symmetrical hermaphroditic contact block
- 0.5 mm contacts

**USB 3.2 SIZE 08 | 9 PINS + SIZE 10 | 12 PINS**

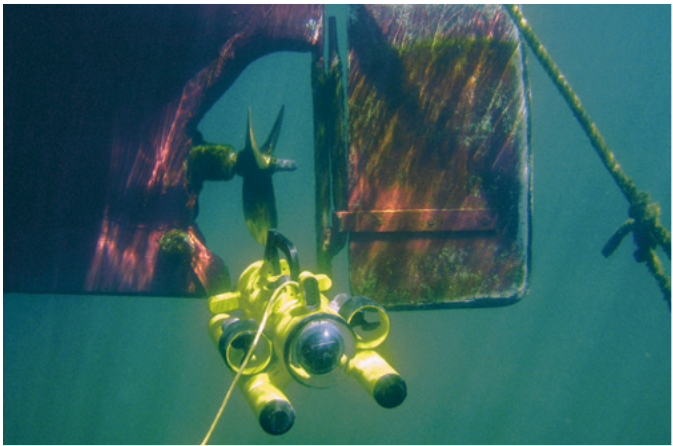
Optimized design for full USB 3.2 Gen 1 and Gen 2 performance, successfully tested to the full S-parameter standards with cables up to 1 m.

- Advanced power contacts
- Hermaphroditic contact block
- 0.5 mm contacts



RELIABILITY

- IP68, -20m/24h* water sealing
<10⁻⁶ mbar l/s gas sealing
- 5,000 mating cycles
- 1,000 h salt mist spray



*The standard sealing level can be achieved on all MiniMax panel mounted receptacles when correctly integrated.

For all cabled mounted connectors, the sealing level depends on the quality of the assembly process and the size and type of cable being used. For MiniMax, Fischer Connectors guarantees an IP64 cable assembly sealing as standard. Upon request, MiniMax cable assemblies with an IP68 sealing rating-20 m for a duration of 24 hours are available and might require additional testing.



HOUSING COLOR

MiniMax is available in **Anthracite Nickel**.
■ The anthracite treatment offers an improved panel grounding of <5 mΩ as required by MIL specs.

Anthracite

Ground contact connected to housing:
- Pin for PCB contact (P) versions
- Solder barrel for solder contact (S) versions



CONTACT COMBINATIONS

The MiniMax contact block is specified by a combination of 4 digits:
- First digit indicates the number of advanced contacts for first mate / last break.
- Second digit indicates the number of larger contacts (and with larger solder cup) for power.
- Digits 3 and 4 are to be considered as one number and will indicate the number of remaining contacts (of standard size and not advanced).

MiniMax uses a hermaphroditic contact block for all configurations except for the 4-pin (2 power + 2 signal) and the 7-pin (3 power + 4 signal) in size 06.

For the 4-pin and 7-pin in size 06, a polarity choice¹⁾ has to be specified and the mating part will reflect an opposite polarity (F mating M; M mating F).

For clarity reasons, the 4-pin in size 06 with 2 power contacts that are also advanced is designated by the digits 0202 and not 2202. A designation by the digits 2202 may confusingly suggest it has 6 contacts instead of the actual 4.

The table on the right shows **all** available standard contact block combinations to help specify the correct product designation. (Also see page J-20).

Size	MR11 / MR12 / MR50	Mates with	MP11
06	0202 xxFx		0202 xxMx
	0202 xxMx		0202 xxFx
	0304 xxFx		0304 xxMx
	0210		0210
08	0008		0008
	0009		2007
	0019		0019
	2017		
	H019 xxFx		H019 xxMx
	0420		0420
10	2418		
	0309		2307
	0624		0624

¹⁾ Size 06 7-pin configuration is receptacle with female contacts and plug with male contacts. For customization please contact your local sales representative.

PLUGS

CABLE
MOUNTED

Body style		MP11-L	MP11-S	MP11-Q	References to detailed information
Protection	Sealed up to IP68	●	●	●	Sealing categories, page A-6
	Hermetic				
Locking system	Push-pull	●			
	Quick-release			●	
	Screw		●		
Termination	Crimp contact				Electrical & contact configurations, page J-16
	Solder contact	●	●	●	
Housing color	Anthracite Nickel	●	●	●	Part numbering, page J-20
Design	Shortened body				Body styles, chapter J
	60° angle ¹⁾	●	●	●	
	Straight	●	●	●	
	Right-angle ¹⁾	●	●	●	
Cabling	Cable clamp sets				-
	Overmoldable	●	●	●	
	Heat shrinkable	●	●	●	
Accessories	Cable bend reliefs ¹⁾	●	●	●	Accessories, page J-21 and J-22
	Protective sleeves				
	Sealing caps	●	●	●	
Size	06	●	●	●	Technical dimensions, page J-8 and J-9 For more information visit our website www.fischerconnectors.com/technical
	08	●	●	●	
	10	●		●	

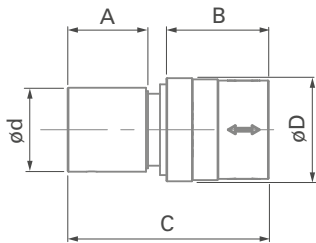
¹⁾ Not available for size 10.

PLUGS

CABLE
MOUNTED

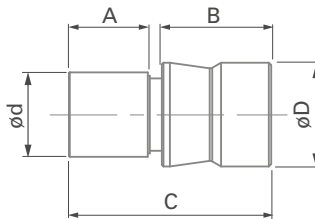
MP11-L / PUSH-PULL

BODY STYLE



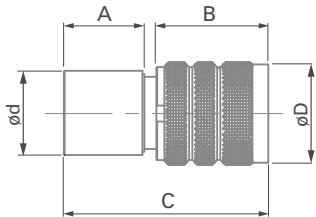
MP11-Q / QUICK-RELEASE

BODY STYLE



MP11-S / SCREW-LOCKING

BODY STYLE



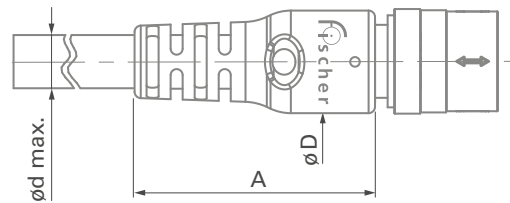
Size	Locking	ød	øD	A	B	~ C
06	Push-pull	8.5	9.9	10.1	12.8	25
	Quick-release	8.5	9.9	10.1	13.6	25
	Screw	8.5	9.9	10.1	14.0	25
08	Push-pull	10.4	12.9	10.1	12.8	25
	Quick-release	10.4	12.9	10.1	13.6	25
	Screw	10.4	12.9	10.1	14.0	25
10	Push-pull	12.4	14.9	10.1	12.8	25
	Quick-release	12.4	14.9	10.1	13.6	25
	Screw	-	-	-	-	-

DIMENSIONS OF OVERMOLDING¹⁾

CABLE MOUNTED

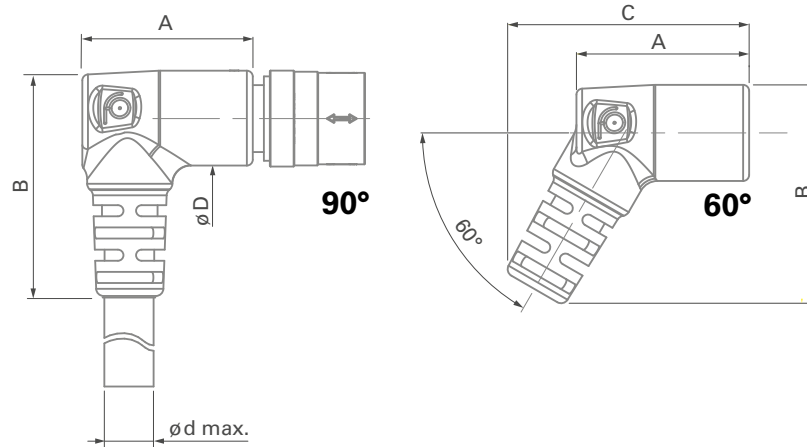
MP11-L/S/Q – MR50-L/S/Q

STRAIGHT OVERMOLDING



MP11-L/S/Q

RIGHT ANGLE & 60° OVERMOLDING



¹⁾ Overmolding available on request. Contact your Fischer Connectors sales representative for details.

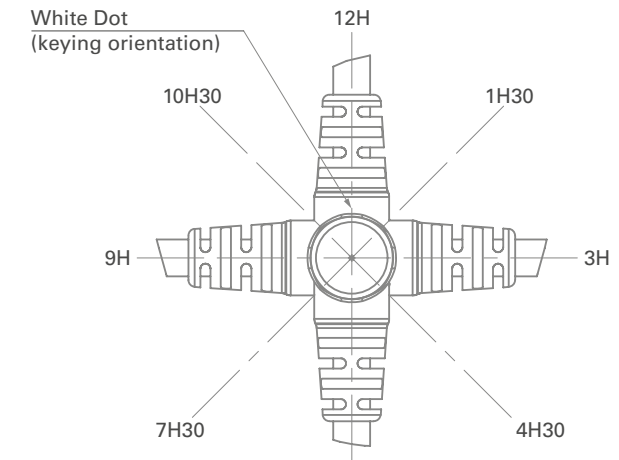
All dimensions and images shown are in millimeters and are for reference only.

Size	Angle	$\varnothing d$ max.	$\varnothing D$	A	B	C
06	Straight	4.7 ²⁾	10.8	30	-	-
	60°	4.7 ²⁾	10.8	23	29.1	32.2
	90°	4.7 ²⁾	10.8	23	30	-
08	Straight	6.7	12.8	30	-	-
	60°	6.7	12.8	23	29.1	32.2
	90°	6.7	12.8	23	30	-
10	Straight	8.7	14.8	30	-	-
	60°	-	-	-	-	-
	90°	-	-	-	-	-

²⁾ 5.8 for MiniMax size 06 with 7 contacts.

8 POSITIONS

ORIENTATION PARALLEL TO PANEL



REAR VIEW OF PLUG

6H
Default

fischer
CONNECTORS

J-9

RECEPTACLES

CABLE
MOUNTED

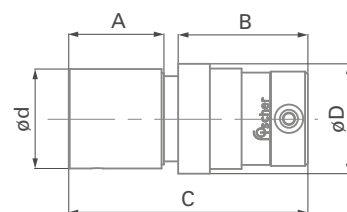
Body style		MR50-L	MR50-S	MR50-Q	References to detailed information
Protection	Sealed up to IP68	●	●	●	Sealing categories, page A-6
	Hermetic				
Locking system	Push-pull	●			
	Quick-release			●	
	Screw		●		
Termination	Crimp contact				Electrical & contact configurations, page J-16
	Solder contact	●	●	●	
Housing	Anthracite Nickel	●	●	●	Part numbering, page J-20
Design	Shortened body				Body styles, chapter J
	60° angle				
	Straight	●	●	●	
	Right-angle				
Cabling	Cable clamp sets				-
	Overmoldable	●	●	●	
	Heat shrinkable	●	●	●	
Accessories	Cable bend reliefs	●	●	●	Accessories, page J-21 and J-22
	Protective sleeves				
	Sealing caps	●	●	●	
Size	06	●	●	●	Technical dimensions, page J-11 For more information visit our website www.fischerconnectors.com/technical
	08	●	●	●	
	10				

RECEPTACLES

CABLE MOUNTED

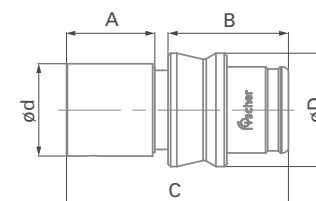
MR50-L / PUSH-PULL

BODY STYLE



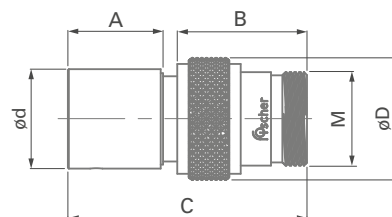
MR50-Q / QUICK-RELEASE

BODY STYLE



MR50-S / SCREW-LOCKING

BODY STYLE



Size	Locking	ød	øD	A	B	~ C	M
06	Push-pull	8.5	9.9	10.1	13.7	25	-
	Quick-release	8.5	9.9	10.1	13.7	25	-
	Screw	8.5	9.9	10.1	13.7	25	M8x2
08	Push-pull	10.5	11.6	10.1	13.7	25	-
	Quick-release	10.5	12.9	10.1	13.7	25	-
	Screw	10.5	12.9	10.1	13.7	25	M10x2
10	Push-pull	-	-	-	-	-	-
	Quick-release	-	-	-	-	-	-
	Screw	-	-	-	-	-	-

RECEPTACLES

PANEL
MOUNTED

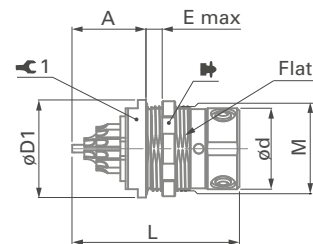
Body style		MR11-L	MR11-S	MR11-Q	MR12-L	MR12-S	MR12-Q	References to detailed information
Protection	Sealed up to IP68	●	●	●	●	●	●	Sealing categories, page A-6
	Hermetic							
Termination	Crimp contact							Electrical & contact configurations, page J-16
	Solder contact	●	●	●	●	●	●	
	PCB contact	●	●	●	●	●	●	
Housing color	Anthracite Nickel	●	●	●	●	●	●	Part numbering, page J-20
Design	Right-angle							Body styles, chapter J
	Flush							
	Front-projecting	●	●	●	●	●	●	
	Bulkhead feedthrough							
Assembly	Front-mounting							
	Rear-mounting	●	●	●	●	●	●	
Accessories	Sealing caps	●	●	●	●	●	●	Accessories, page J-21 and J-22
	Spacers							
	Color-coded washers							
	Grounding washers							
	Locking washers							
Size	06	●	●	●	●	●	●	Technical dimensions, page J-13 to J-15 For more information visit our website www.fischerconnectors.com/technical
	08	●	●	●	●	●	●	
	10	●		●				

RECEPTACLES

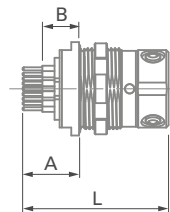
PANEL REAR MOUNTED

MR11-L / PUSH-PULL

BODY STYLE



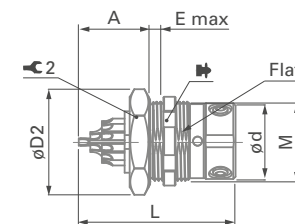
SOLDER



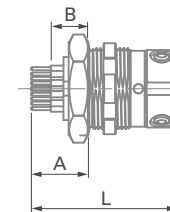
PCB

MR12-L / PUSH-PULL

BODY STYLE



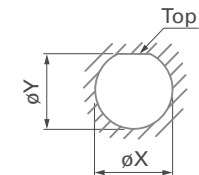
SOLDER



PCB

Size	Locking	Termination	ød	øD1	øD2	A	B	L	E max	M Panel thread	1	2	Torque
06	Push-pull	Solder contact	8.0	10.0	11.4	7.6	-	19.1	3.0	M8.5x0.35	8	10	1.0 Nm
		PCB contact	8.0	10.0	11.4	7.3	4.7	18.8	3.0	M8.5x0.35	8	10	1.0 Nm
08	Push-pull	Solder contact	10.0	12.0	13.7	9.1	-	20.6	3.0	M10.5x0.5	10	12	1.5 Nm
		PCB contact	10.0	12.0	13.7	7.3	4.7	18.8	3.0	M10.5x0.5	10	12	1.5 Nm
10	Push-pull	Solder contact	12.0	14.0	-	7.6	-	19.1	3.0	M12.5x0.5	12	-	2.0 Nm
		PCB contact	12.0	14.0	-	7.3	4.7	18.8	3.0	M12.5x0.5	12	-	2.0 Nm

PANEL CUT-OUT



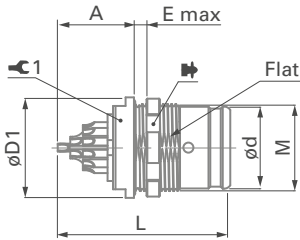
Size	øX	øY
06	8.58 +0.1/0	8.25 +0.1/0
08	10.45 +0.1/0	10.2 +0.1/0
10	12.45 +0.1/0	12.2 +0.1/0

RECEPTACLES

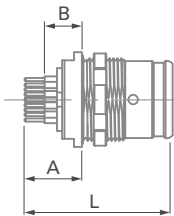
PANEL REAR
MOUNTED

MR11-Q / QUICK-RELEASE

BODY STYLE



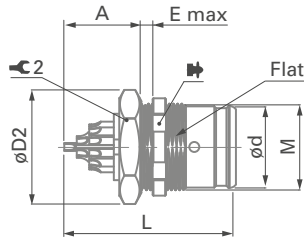
SOLDER



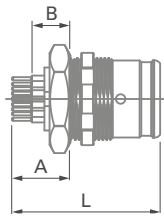
PCB

MR12-Q / QUICK-RELEASE

BODY STYLE

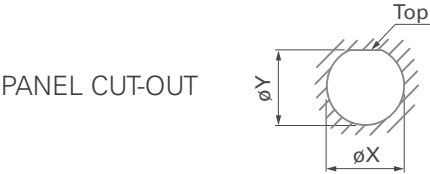


SOLDER



PCB

Size	Locking	Termination	ød	øD1	øD2	A	B	L	E max	M Panel thread	1	2	Torque
06	Quick- release	Solder contact	7.8	10.0	11.4	7.6	-	19.1	3.0	M8.5x0.35	8	10	1.0 Nm
		PCB contact	7.8	10.0	11.4	7.3	4.7	18.8	3.0	M8.5x0.35	8	10	1.0 Nm
08	Quick-release	Solder contact	9.8	12.0	13.7	9.1	-	20.6	3.0	M10.5x0.5	10	12	1.5 Nm
		PCB contact	9.8	12.0	13.7	7.3	4.7	18.8	3.0	M10.5x0.5	10	12	1.5 Nm
10	Quick-release	Solder contact	11.8	14.0	-	7.6	-	19.1	3.0	M12.5x0.5	12	-	2.0 Nm
		PCB contact	11.8	14.0	-	7.3	4.7	18.8	3.0	M12.5x0.5	12	-	2.0 Nm



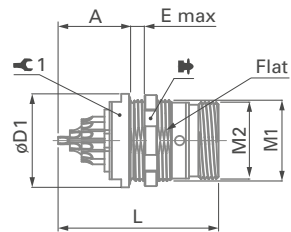
Size	X	Y
06	8.58 +0.1/0	8.25 +0.1/0
08	10.45 +0.1/0	10.2 +0.1/0
10	12.45 +0.1/0	12.2 +0.1/0

RECEPTACLES

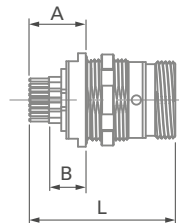
PANEL REAR MOUNTED

MR11-S / SCREW-LOCKING

BODY STYLE



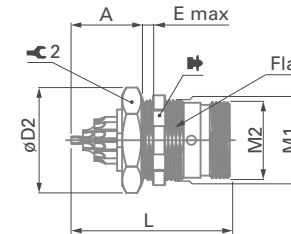
SOLDER



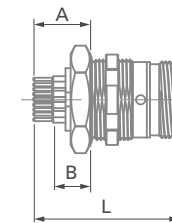
PCB

MR12-S / SCREW-LOCKING

BODY STYLE



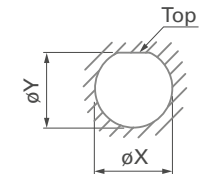
SOLDER



PCB

Size	Locking	Termination	ØD1	ØD2	A	B	L	E max	M1 Panel thread	M2 Locking thread	1	2	Torque
06	Screw	Solder contact	10.0	11.4	7.6	N/A	19.1	2.3	M8.5x0.35	M8x2	8	10	1.0 Nm
		PCB contact	10.0	11.4	7.3	4.7	18.8	2.3	M8.5x0.35	M8x2	8	10	1.0 Nm
08	Screw	Solder contact	12.0	13.7	9.1	-	20.6	2.3	M10.5x0.5	M10x2	10	12	1.5 Nm
		PCB contact	12.0	13.7	7.3	4.7	18.8	2.3	M10.5x0.5	M10x2	10	12	1.5 Nm
10	Screw	Solder contact	-	-	-	-	-	-	-	-	-	-	-
		PCB contact	-	-	-	-	-	-	-	-	-	-	-

PANEL CUT-OUT



Size	ØX	ØY
06	8.58 +0.1/0	8.25 +0.1/0
08	10.45 +0.1/0	10.2 +0.1/0
10	-	-

Size	Pin layout	Number of contacts		Contact diameter [mm]	Wire size ¹⁾	PCB contacts	Current [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					IEC 60512-4-1 test 4a							
					Solder contacts	Pin diameter [mm]	IEC 60512-5-2-5b ²⁾	IEC 60664-1 ³⁾	AC r.m.s.		DC	
									Contact to body	Contact to contact	Contact to body	Contact to contact
06		4	2	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	1.0	≤200	1.4	1.2	2.3	1.9
	2		1.3	Max ø1.33 mm – AWG18 [19/30]	0.7	10						
		7	4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	0.02 (2x) + 1.5 (2x)	≤160	1.0	1.2	2.0	1.7
			3	0.7	Max ø0.90 mm – AWG22 [19/34]	0.5						
		12	10	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4	1.0	≤50	0.9	0.9	1.5	1.2
			2	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
08	 ETHERNET	8		0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	3.8	≤320	1.6	1.6	2.2	2.2
	 USB 3.2	9	7	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4	1.0	≤250	1.5	1.2	2.4	1.8
			2 ⁵⁾	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
		19	15	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	1.0	≤100	0.9	0.9	1.5	1.2
			4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
		19	13+2 ⁴⁾	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	1.0	≤100	0.9	0.9	1.5	1.2
			4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
		19H	12	0.5	Max ø0.55 mm – AWG26 [19/38]	0.4	1.5 ¹⁰⁾	≤125	1.0	1.0	1.8	1.8
			7	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4						
		24	20	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4	1.0	≤63	0.9	0.9	1.5	1.2
			4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
		24	18+2 ⁴⁾	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4	1.0	≤63	0.9	0.9	1.5	1.2
4			0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0						
10	 USB 3.2	12	7	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4	0.02	≤250	1.7	1.5	2.3	2.0
			2 ⁵⁾	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	3.0		1.7	1.5	2.3	2.0
			3	0.9	Max ø1.03 mm – AWG20 [26/34]	0.7	8.0		1.8	3.1	2.4	4.5
			-	-	-	-	2.7 ⁶⁾					
		30	24	0.5	Max ø0.43 mm – AWG28 [19/40]	0.4	1.0	≤160	1.2	1.0	1.9	1.7
			6	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0		1.2	1.0	1.9	1.7

¹⁾ Stranding values in brackets.²⁾ Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.³⁾ Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies. In

cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁴⁾ Two advanced signal contacts for USB power are available for Solder (S) or PCB (P) receptacles.⁵⁾ USB 3.2 contact blocks come with two advanced power contacts on the plug side (MP11) as standard (size 08 plug 9-pin contact block 2007 and size 10 plug 12-pin contact block 2307).⁶⁾ Test voltage between contacts 0.9 and contacts 0.5 for configuration MiniMax size 10 2307/0309.⁷⁾ Test voltage between contacts 0.7 and contacts 0.5 for configuration MiniMax size 06 0304.⁸⁾ Contacts 0.7mm suitable for SPE data protocol 1 Gbit/s.⁹⁾ Layout dedicated to 4K UHD Audio/Video Protocol 18.0 Gbit/s.¹⁰⁾ Current of 1.4 A at a maximum temperature rise of 30 °C according to UHD specifications.

MECHANICAL AND VISUAL CODING

The mechanical coding for MiniMax is available as standard in 4 different variants : code 1, 2, 3, 4.

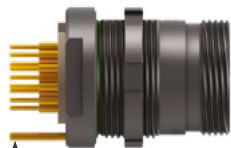
When size, body type, configuration and code matches the plug and receptacle will mate by aligning the exterior white marks (coding guide).

For additional differentiation, the odd codes are visually identified by a beige contact block while the even codes will vary with a black insulator.

PLUGS	Size 06			
	Code 1	Code 2	Code 3	Code 4
				
Visual coding				

PLUGS	Size 08			
	Code 1	Code 2	Code 3	Code 4
				
Visual coding				

PLUGS	Size 10			
	Code 1	Code 2	Code 3	Code 4
				
Visual coding				



Ground contact connected to housing:
 - Pin for PCB contact (P) versions
 - Solder barrel for solder contact (S) versions

Recommended wiring

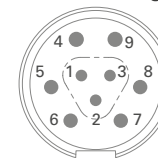
Size	06			08			10
Configuration	2+2	3+4	12	8	19	24	30
Power	2; 4	5; 6; 7	5; 9	any2	9; 12; 15; 18 ¹⁾	14; 17; 20; 23	14; 17; 20; 23; 26; 29
Ethernet	-	-	1/6; 2/7; 3/10; 4/11 ¹⁾	1/2; 3/4; 5/6; 7/8 ¹⁾	8/19; 10/11; 13/14; 16/17 ¹⁾	15/16; 18/19; 21/22; 13/24 ¹⁾	Any other ¹⁾
Advanced pin	2; 4	-	-	-	13; 19 ²⁾	18; 24 ²⁾	-

¹⁾ Recommended

²⁾ Optional on MR11 / MR12

USB Signal name ³⁾

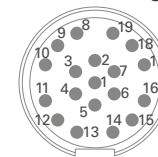
Size 08, configuration 9 contacts



- | | |
|---------------|-------------|
| 1) USB 2.0 D- | 5) SS TX+ |
| 2) SS drain | 6) SS TX- |
| 3) USB 2.0 D+ | 7) SS RX+ |
| 4) Vbus 5 V | 8) SS RX- |
| | 9) Vbus GND |

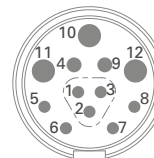
UHD 18.0 Gbit/s protocol

Size 08, configuration 19 contacts



- | | |
|--------------------------|--------------------------|
| 1) +5 V Power | 11) TMDS data 1- |
| 2) DDC/CEC Ground | 12) TMDS data 0 shield |
| 3) Utility | 13) TMDS data 0+ |
| 4) Hot plug detect | 14) TMDS data 0- |
| 5) SDA | 15) TMDS data CLK shield |
| 6) SCL | 16) TMDS data CLK + |
| 7) CEC (delayed contact) | 17) TMDS data CLK - |
| 8) TMDS data 2- | 18) TMDS data 2 shield |
| 9) TMDS data 1 shield | 19) TMDS data 2+ |
| 10) TMDS data 1+ | |

Size 10, configuration 12 contacts

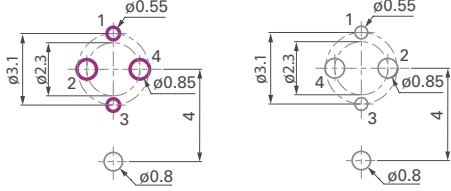
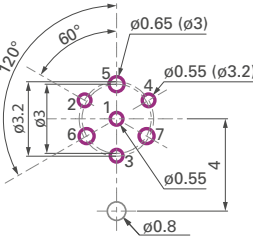
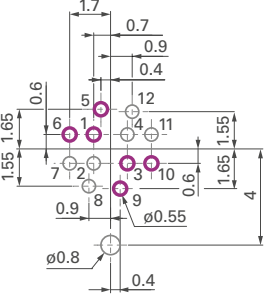


- | | |
|---------------|-------------|
| 1) USB 2.0 D- | 7) SS RX+ |
| 2) SS drain | 8) SS RX- |
| 3) USB 2.0 D+ | 9) Vbus GND |
| 4) Vbus 5 V | 10) Power |
| 5) SS TX+ | 11) Power |
| 6) SS TX- | 12) Power |

³⁾ RXTX labelling of Fischer Rugged Flash Drive.

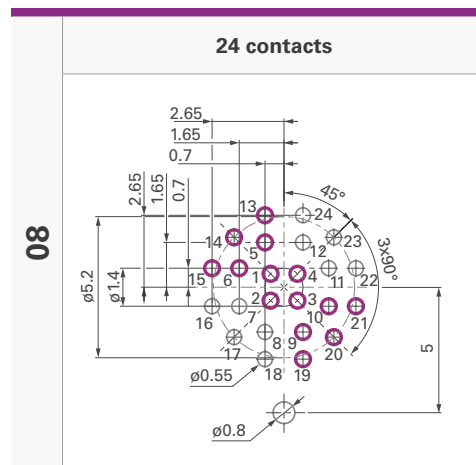
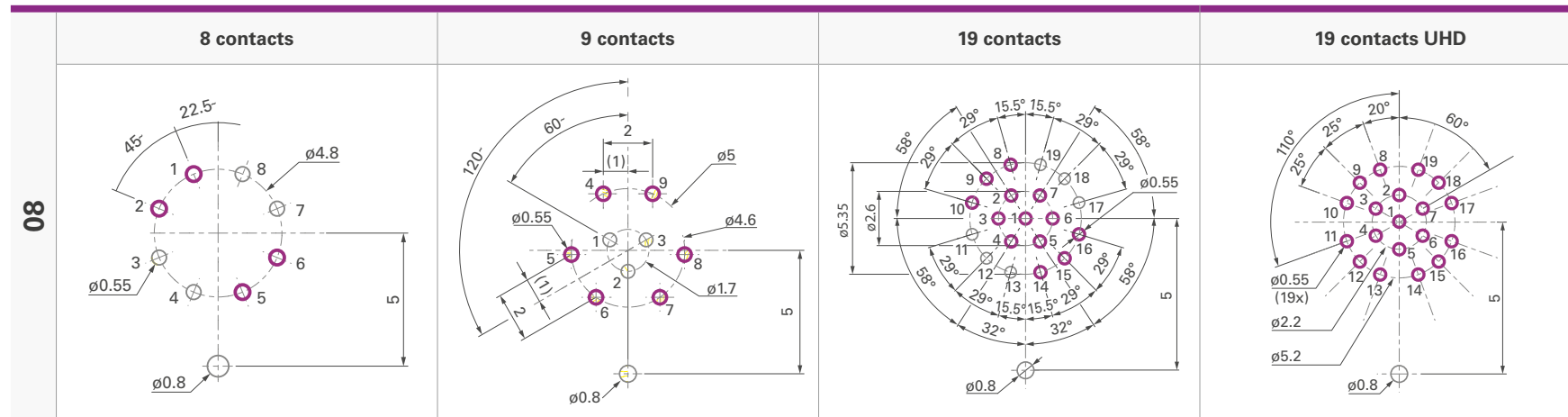
The RX of one device must always connect to the TX of the other device and vice versa.

View from the back of the plug/front of receptacle (guide mark at 12 o'clock)

06	2+2 contacts	3+4 contacts	12 contacts
	 All contacts are male or female depending on polarity.		

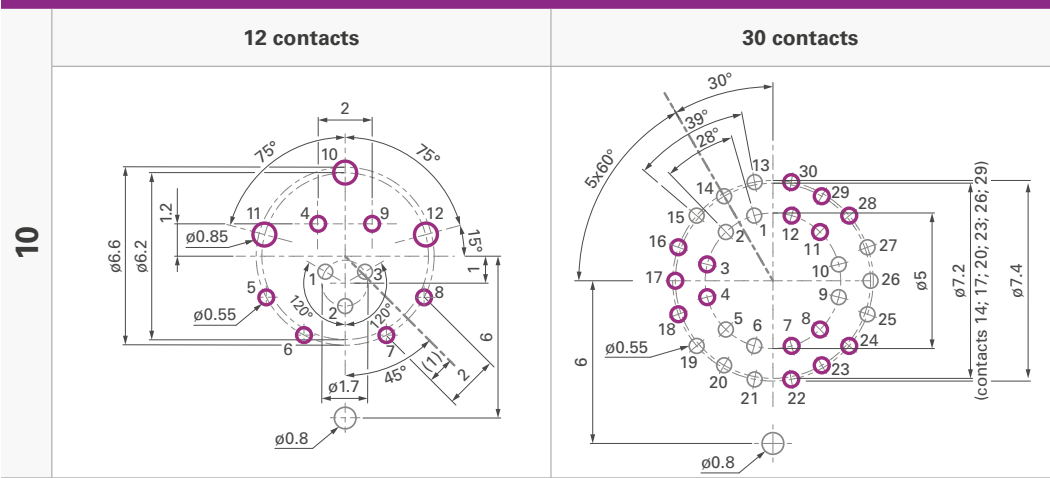
	Contacts	
	Plugs	Receptacles
○	Male	Female
○	Female	Male

View from the back of the plug/front of receptacle (guide mark at 12 o'clock)



Contacts		
	Plugs	Receptacles
	Male	Female
	Female	Male

View from the back of the plug/front of receptacle (guide mark at 12 o'clock)

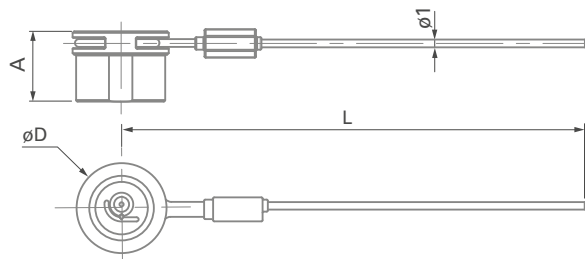
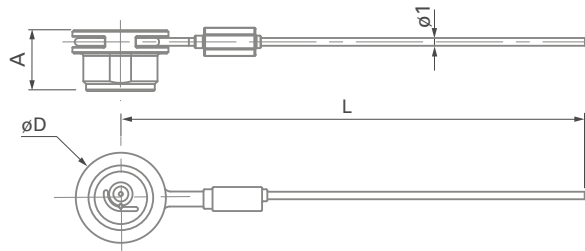
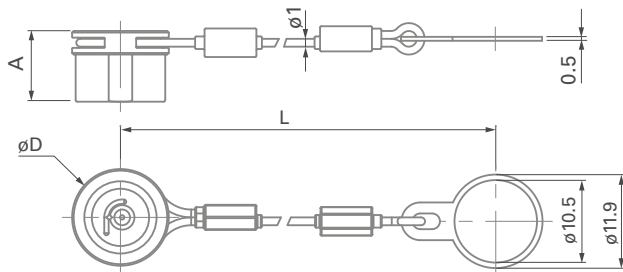


Contacts		
	Plugs	Receptacles
○	Male	Female
○	Female	Male

PLUGS & RECEPTACLES

		Connector design				Contact block		Housing		Standard options			
Example:		MP11	Z	L	08	0420		AN	1	Z	1	A	S
		MR11	W	S	08	2017		AN	2	E	1	A	P
		MR50	Z	Q	08	0019		AN	4	E	1	A	S
Body style		MiniMax plug = MP ■ MP11 = Cable mounted MiniMax receptacle = MR ■ MR11 = Panel mounted ■ MR12 = Panel mounted ■ MR50 = Cable mounted								Termination MP11, MR50 ■ S = Solder contact MR11, MR12 ■ P = PCB contact ■ S = Solder contact			
Sealing level		MP11, MR50 ■ Z = not applicable MR11, MR12 ■ W = water sealing (IP68)								Contact bloc ■ A = Hermaphroditic (both MR and MP need to be "A") ■ F* = Female contacts ■ M* = Male contacts * only for size 06 configuration 0202 and 0304 ¹⁾ (if MR = "F" then MP = "M"; if MR = "M" then MP = "F")			
Locking system		MiniMax plug & receptacle ■ L = Push-pull locking ■ S = Screw-locking ■ Q = Quick-release								Insulating material ■ 1 = PEEK			
Connector size		■ 06 = Size 6 ■ 08 = Size 8 ■ 10 = Size 10								Interface O-ring material MP11 ■ Z = Not applicable MR11, MR12, MR50 ■ E = EPDM			
Number of contacts (see page J-6)		■ Digit 1 = Advanced contacts (if applicable), except H019 as per table on page J-6 Contact Combinations ■ Digit 2 = Power contacts (where physically larger than the other contacts) ■ Digit 3+4 = Remaining contacts								Keying code ■ 1 = Code 1 (insulator= Beige) ■ 2 = Code 2 (insulator= Black) ■ 3 = Code 3 (insulator= Beige) ■ 4 = Code 4 (insulator= Black)			
										Housing color ■ AN = Anthracite			

¹⁾ Configuration 0304 is standard with F for receptacle and M for plug. For customization please contact your local sales representative.

SOFT CAPS**CABLE MOUNTED****PANEL MOUNTED**

Size	Body style	Images	Push-pull	Quick-release	Screw-lock	A	øD	L	Part number
06	MP11 ¹⁾		●			9.6	10.0	200	MCP06C 1B2 A200 AA
				●	●	7.8	10.0	200	MCP06C 1B2 A200 BA
08			●			9.6	12.3	200	MCP08C 1B2 A200 AA
				●	●	7.8	12.3	200	MCP08C 1B2 A200 BA
10			●		-	9.6	14.3	200	MCP10C 1B2 A200 AA
				●	-	7.8	14.3	200	MCP10C 1B2 A200 BA
06	MR50 ¹⁾		●	●	●	9.0	10.0	200	MCR06C 1B2 A200 AA
08			●	●	●	9.0	12.3	200	MCR08C 1B2 A200 AA
10			●	●	●	9.0	14.3	200	MCR10C 1B2 A200 AA

¹⁾Crimp ferrule and heat shrink tube are included.

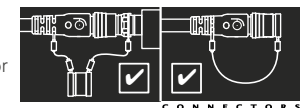
Size	Body style	Images	Push-pull	Quick-release	Screw-lock	A	øD	L	ød1	ød2	Part number
06	MR11 ¹⁾ MR12 ¹⁾		●	●	●	9.0	10.0	95	8.5	9.9	MCR06P 1B2 A095 AA
08			●	●	●	9.0	12.3	95	10.5	11.9	MCR08P 1B2 A095 AA
10			●	●	-	9.0	14.3	95	12.6	13.9	MCR10P 1B2 A095 AA

¹⁾Crimp ferrule, heat shrink tube and mounting ring are included.

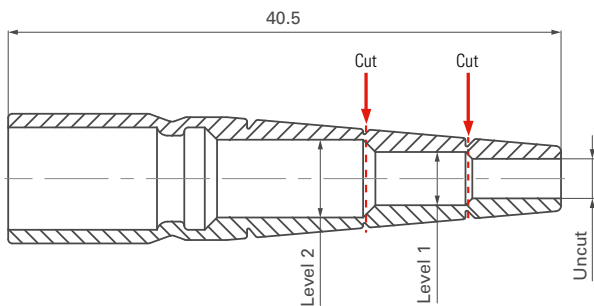
All dimensions and images shown are in millimeters and are for reference only.

To avoid getting debris into the caps when the connectors are mated, please mate the caps together.

Please make sure that the cap is in place when the plug or the receptacle is in unmated position.



STRAIGHT BEND RELIEF



CUTTING DIAMETERS

Size	Uncut	Level 1	Level 2	Part Number
06	ø2.9	ø3.9	ø5.7	MB06 A1BK
08	ø3.9	ø5.4	ø6.7	MB08 A1BK
10	-	-	-	-

SPANNER & NUT DRIVER**DOUBLE-ENDED
OPEN SPANNER** EXTRA THIN 

Size	Part number	Opening across flats	Length	Fork thickness
06	TX00.008	8	96	2.3
08	TX00.010	10	104	2.5
	TX00.012	12		
10	TX00.012	12	104	2.5

Material – Chrome Alloy Steel, Chrome plated, Fork Angles – 15° and 75°.

**NUT DRIVER WITH T-HANDLE
AND HEX DRIVE** 

Part number	Thread size	Nut outer dia.	øD	Hex drive
TX00.383	M8.5x0.35	10	14	7
TC00.007	M10.5x0.5	12	16	7
TX00.403	M12.5x0.5	14	18	7

Material – Hardened Tool Steel, Nickel plated.

**SINGLE SIDED HEX NUT
DRIVER**

Part number	Thread size	Nut outer dia.	øD	Hex drive
TX00.386	M8.5x0.35	10	14	12
TX00.385	M10.5x0.5	13	16	12
TX00.412	M12.5x0.5	15	18	12

Material – Hardened Tool Steel, Nickel plated and plastic.

CABLE ASSEMBLY

Note: Cable assembly is only possible with special tooling developed by Fischer Connectors. Due to the complexity of the connector purchase costs may be significant. As an alternative solution, Fischer Connectors offers premium cable assembly services.



Part number	Description
130257	Hand press Luthy HP150T or equivalent



Part number	Description
130254	MiniMax support tool



Part number	Description
130252	MiniMax tool kit Size 06
139451	MiniMax tool kit Size 06 (7 contacts)
130253	MiniMax tool kit Size 08
137461	MiniMax tool kit Size 10

All dimensions and images shown are in millimeters and are for reference only.

MATERIAL & SURFACE FINISH

Metal components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Housing, Nut		Brass CuZn39Pb3	CW614N UNS C 38500	Anthracite Nickel	SAE-AMS2404 SAE-AMS-QQ-N-290
Back nut (MP11, MR50)		Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290B SAE-AMS2404G
Ground contact		Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290B SAE-AMS2404G
Push-pull locking spring Quick-release locking spring		Stainless steel	X10CrNi18-8 (1.4310)	-	-
Contacts	- Male, Ground Pin	Brass CuZn39Pb3	CW614N; UNS C 38500	1 µm Gold over Nickel	MIL-DTL-45204D Type I; ASTM B488
	- Female	Bronze CuSn4Zn4Pb4	CW456K; ASTM B139 UNS C 54400	1 µm Gold over Nickel	MIL-DTL-45204D Type I; ASTM B488
Ball-locking		Ceramic Si3N4	-	-	-

Insulator and sealing		International symbol	Flammability
Insulators		PEEK ¹⁾	UL 94 V-0
O-rings	- General	FPM (Viton®)	-
	- Interface	EPDM	-
Sealant	- Cable connectors	Epoxy compound	-
	- Panel receptacles	Silicone/Epoxy ²⁾ compound	UL 94 V-0
Bend relief	- Cable connectors	Santoprene™ TPV 101-73	UL 94 HB
Cap	- Cable connectors	TPV (Santoprene™)	UL 94 HB
	- Panel receptacles		

¹⁾ Or any material in the PAEK family that provides equal or better overall performances.

²⁾ For panel receptacle size 10.

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance mated and unmated	IP68, -20m/24h water sealing <10 ⁻⁶ mbar l/s gas sealing	IEC 60529 IEC 60068-2-17 Test Qk, Method 3
Sealing performance Soft Cap	IP67; 15 cm submersion for 30 min	IEC 60529
Operating temperature range ¹⁾	-40 °C to +135 °C	IEC 60512-6-1 IEC 60068-2-14-Nb
Corrosion resistance mated	Salt mist 1,000 hours ; 5% salt solution, 35 °C Plug and receptacle in mated position or with cap when unmated. Appearance may change over time without impacting mechanical or electrical functions.	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101; EIA-364-26
Endurance	5,000 mating cycles Preserved mechanical and electrical functionality. Normal wear will appear.	IEC 60512-9-1
Vibration Screw-locking version only	10 to 2,000 Hz, 1.5 mm or 15 g, 12 sweep cycles per axis, 20 minutes per 10-2,000-10 Hz sweep cycle, no discontinuity >1 µs, no visible signs of damage	MIL-STD-202 Method 204 Condition B
Vibration Push-pull version	10 to 500 Hz, (1.5 mm or 10 g, 12 sweep cycles per axis, 15 minutes per 10-500-10 Hz sweep cycle, no discontinuity >1 µs, no visible signs of damage	MIL-STD-202 Method 204 Condition A
Unlocking Force Quick-release version only	Size 06 = Typical 25 N±40% Size 08 = Typical 35 N±40% Size 10 = Typical 60 N±40%	
Shock	300 g	MIL-STD-202 Method 213; EIA-364-27

¹⁾ Max temperature of +85 °C for soft caps.

ELECTRICAL DATA

Characteristic	Performance	Standard
Contact resistance	5 mΩ (typical value)	IEC 60512-2-1-2a; IEC 60512-2-2-2b
Shell resistance ²⁾	ANTHRACITE <5 mΩ (Cabled)	IEC 60512-2-6-2f
Insulation resistance	>10 ¹⁰ Ω	IEC 60512-3-1-3a
Shielding effectiveness	360° shielded	-

²⁾ Measured for a mated pair of panel receptacle and cable plug between the grounding pin and the cable shielding.

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A pioneer in high-reliability and rugged connector technology, **Fischer Connectors** has kept the spirit of innovation alive for more than 60 years. Since 1954, it has been reimagining connectivity, turning its customers' challenges into success stories through breakthrough technologies, high-quality products and highly responsive customer service.

Fischer Connectors helps its customers around the world produce innovative and reliable applications by designing, manufacturing and distributing high-performance, rugged connectivity solutions that withstand the most demanding environments. Its high-quality solutions are particularly suited to applications requiring faultless precision, durability and resistance to extreme conditions, including defense and security, medical, industrial, instrumentation, audiovisual, transportation, and energy.

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Jonathan Brossard, Group CEO

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UPDATES

Date	Version	Page	Update
06.2023	3.5	H-38	Current rating value change
06.2023	3.5	H-41 - H-42	Values and diagram changes
06.2023	3.5	H-33 - H-37	Addition of connectors configuration to ULTIMATE 80 series.
06.2023	3.5	H-43	Addition of an accessory soft caps lanyard
10.2023	3.6	J-1 - J-27	New Minimax configuration : UHD, Size 08, 19 contacts
11.2023	3.7	H-44	Corrections under «Shielding effectiveness»
02.2024	3.8	H-45	Changes in the table: materials
07.2024	4.0		Introduction of new contact layout USB3.2 Gen 2.
08.2024	4.1		Changes in product finish (Nickel Anthracite/Black Chrome over nickel)
12.2024	4.2	H-1 - H-58	Ratchet locking system and USB-C addition
01.2025	4.3	A-14, H-17, J-4	Text corrections
01.2025	4.3	H-5	Addition of dimensions values
04.2025	4.4	J-23	Addition of values
04.2025	4.4	H-40	Pin layout diagram
04.2025	4.4	H-1 - H-59	Various corrections
04.2025	4.4	H-45	Addition of datas («Metal Cap»)
05.2025	4.5	H-47 - H-62	Addition of UP80 connector
05.2025	4.5	A-21	Map update
05.2025	4.6	H-34, H-46	Corrosion resistance
10.2025	4.7	H-30, H-32	Part number correction
10.2025	4.7	H-40, H-41	Added protocol specification
10.2025	4.7	H-40, H-41	Updated shielding effectiveness data
10.2025	4.7	H-61	Crimping ring material update
10.2025	4.7	J-6	Table update, size 08, line "H019"
10.2025	4.7		Removed Freedom series
12.2025	4.8	H-35 - H-41	New: USB-C cable termination for the ULTIMATE pre-cabled receptacle
05.2026	4.9	A-14, J-4	Minimax: Ethernet speed value adjustment
05.2026	4.9	J-4, J-18, H-61, H-33, H-34, H-47	Misc. corrections

TECHNICAL SPECIFICATIONS

VOLUME 1

- BRASS
- STAINLESS STEEL
- ALULITE
- PLASTIC
- DISPOSABLE



VOLUME 1

BRASS- STAINLESS STEEL- ALULITE
PLASTIC- DISPOSABLE

TECHNICAL SPECIFICATIONS

VOLUME 2

- ULTIMATE
- FIBEROPTIC
- MINIMAX



VOLUME 2

ULTIMATE- FIBEROPTIC- MINIMAX



Technical & Downloads

Headquarters

FISCHER CONNECTORS SA
Ch. du Glapin 20
1162 Saint-Prex - Switzerland
Phone +41 21 800 95 95
Free phone +41 800 800 008
www.fischerconnectors.com
mail@fischerconnectors.ch

United States, Canada & South America

FISCHER CONNECTORS, Inc.
Atlanta, GA
Phone +1 678 393 5400
Toll free : 800 551 0121
www.fischerconnectors.com/us
mail@fischerconnectors.com

France

FISCHER CONNECTORS Sarl
Chanteloup-en-Brie
Phone +33 1 5578 2578
Appel gratuit: 0 800 590 444
www.fischerconnectors.fr
mail@fischerconnectors.fr

Germany, Austria & Eastern Europe

FISCHER CONNECTORS GmbH
Zorneding
Phone +49 8106 37722 0
Gebührenfrei: 0 800 233 3233
www.fischerconnectors.de
mail@fischerconnectors.de

Italy

FISCHER CONNECTORS Srl
Monza
Phone +39 039 734 072
www.fischerconnectors.it
mail@fischerconnectors.it

United Kingdom & Ireland

FISCHER CONNECTORS Ltd.
Waterlooville, Hampshire
Phone +44 23 9245 9600
Toll free: 0 800 432 0301
www.fischerconnectors.co.uk
sales@fischerconnectors.co.uk

India

FISCHER CONNECTORS India Pvt. Ltd.
504 GF& FF , Pace City 2
Sector 37
Gurugram 122004
Haryana
Phone +91 (0)124 5063725
www.fischerconnectors.com
salesin@fischerconnectors.in

Asia

FISCHER CONNECTORS ASIA Ltd.
Hong Kong
Phone +852 2620 6118
www.fischerconnectors.hk
mail@fischerconnectors.hk

Japan

FISCHER CONNECTORS K.K
Tokyo
Phone +81 70 1056 6637
www.fischerconnectors.jp
mail@fischerconnectors.jp

