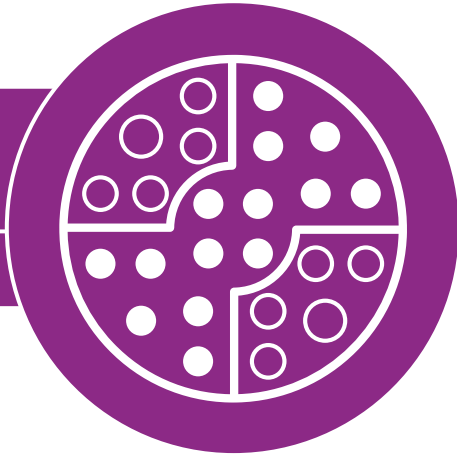


J

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

J-6 / J-24

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
- Electrical & contact configurations..... J-16
- Mechanical coding..... J-16
- PCB hole layout..... J-17
- Part numbering..... J-18
- Accessories J-19
- Tooling J-21
- Technical information J-22

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 AND SIZE 08



**UP TO 45%
SMALLER**

SIZE 08

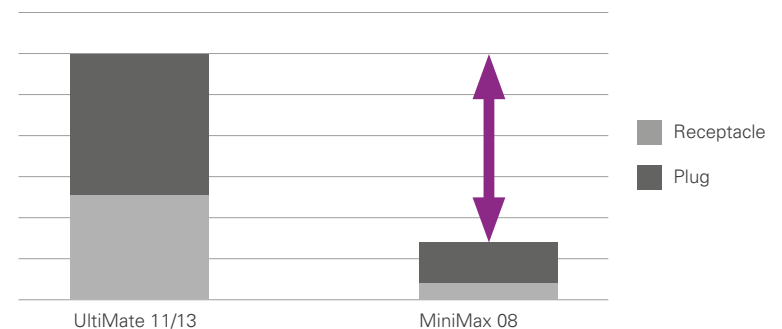
COMPARED TO STANDARD RECEPTACLES
WITH SIMILAR NUMBER OF CONTACTS



**UP TO 75%
LIGHTER**

SIZE 08

PLUGS & RECEPTACLES WEIGHT COMPARISON



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

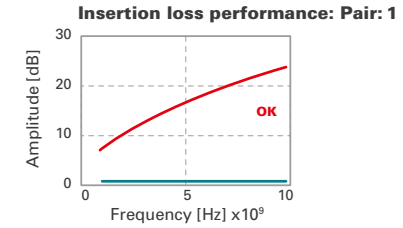
HIGH-SPEED DATA TRANSFER



ETHERNET 8-PIN

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

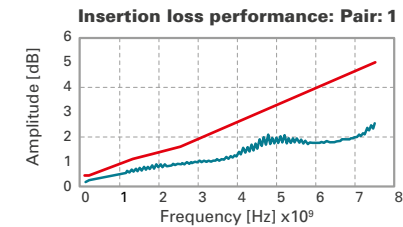
- AWG24, compatible with long range standard Ethernet cables
- Symmetrical hermaphroditic contact block
- 0.5 mm contacts



USB 3.0 9-PIN

Optimized design for full USB 3.0 performance. Successfully tested to the full S-parameter standards with cables up to 2 m.

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



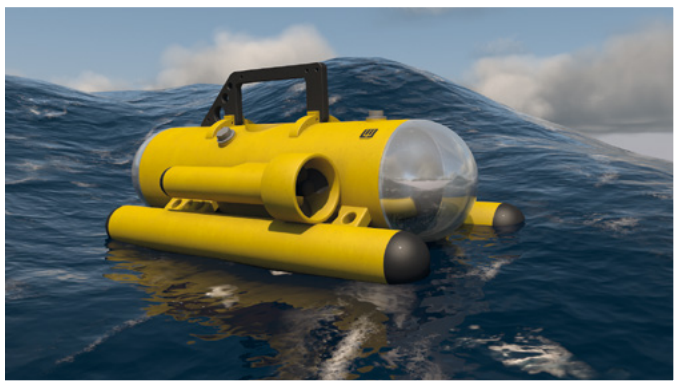
MINIMAX



	06-4 pin	06-12 pin	08-8 pin	08-09 pin	08-19 pin	08-24 pin	
USB 2.0	YES	YES	YES	YES	YES	YES	Full spec up to 2 m cable
USB 3.0	NO	YES	NO	YES	YES	YES	Application dependent
	NO	NO	NO	YES	NO	NO	Full spec up to 2 m cable
ETHERNET 10 Gbit/s	NO	YES	YES	NO	YES	YES	Ethernet AWG28
	NO	NO	YES	NO	NO	NO	Ethernet AWG24
HDMI	NO	NO	NO	NO	YES	YES	HDMI 1.4

RELIABILITY

- IP68, 20 m/24 h* water sealing
10^{-6} mbar. l/sec gas sealing
- 5,000 mating cycles
- 1,000 h salt mist spray



*The standard sealing level can be achieved on all MiniMax receptacles when correctly integrated. For cabled plugs, the sealing level depends on the quality of the assembly process and the size and type of cable being used for the plug assembly.

Fischer Connectors guarantees standard IP64 cable sealing. Cable assemblies with IP68 sealing down to 2 m or 20 m is available upon request and might impose limitations and require additional testing.

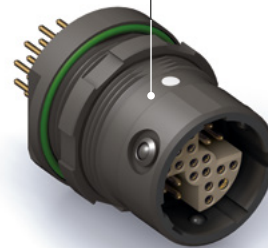
MINIMAX

HOUSING COLORS

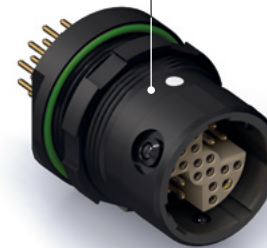
MiniMax is available in two housing colors:
Nickel ANTHRACITE and **Chrome BLACK**.¹⁾

- Both color solutions are non-reflective and offer a discreet connector solution for military applications.
- The anthracite treatment offers an improved panel grounding of <5 mΩ as required by MIL specs.

Anthracite
standard



Black
optional



CONTACT COMBINATIONS

The MiniMax contact block is specified by a combination of 4 digits. The first digit indicates the number of advanced contacts for first mate / last break. The second digit indicates the number of larger contacts (and with a larger solder cup) for power.

The 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 one (2 power + 2 signal) in Size 06. In this case, you need to specify the correct polarity and make sure to select the opposite polarity on the mating part. This configuration has 2 power contacts that are advanced. For clarity reasons, it is designated by the digits 0202 and not 2202 that may confusingly suggest that it has 6 instead of 4 contacts.

The table on the right shows all available standard contact block combinations to help you specify the correct product designation. (See page J-16).

Size	MR11 / MR12 / MR50	Mates with	MP11
06	0202 xxFx		0202 xxMx
	0202 xxMx		0202 xxFx
08	0210		0210
	0008		0008
	0009		2007
	0019		0019
	2017		
	0420 2418		0420

¹⁾ MR12 body style not available in BLACK. 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	●			Electrical & contact configurations, page J-16
	Quick-release			●	
	Screw		●		
Termination	Crimp contact				Part numbering, page J-18
	Solder contact	●	●	●	
Housing color	Nickel ANTHRACITE	●	●	●	Body styles, chapter J
	Chrome BLACK	●	●	●	
Design	Shortened body				-
	60° angle	●	●	●	
	Straight	●	●	●	
	Right-angle	●	●	●	
Cabling	Cable clamp sets				Accessories, page J-19 and J-20
	Overmoldable	●	●	●	
	Heat shrinkable	●	●	●	
Accessories	Cable bend reliefs	●	●	●	Technical dimensions, page J-8 and J-9 For more information visit our website www.fischerconnectors.com/technical
	Protective sleeves				
	Sealing caps	●	●	●	
Size	06	●	●	●	
	08	●	●	●	

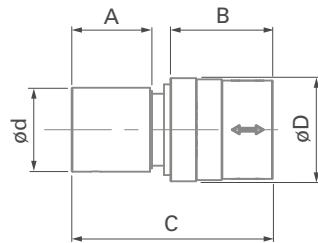


PLUGS

CABLE MOUNTED

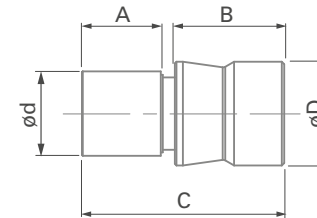
MP11-L / PUSH-PULL

BODY STYLE



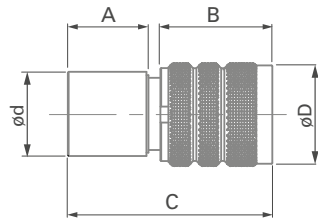
MP11-Q / QUICK-RELEASE

BODY STYLE



MP11-S / SCREW-LOCKING

BODY STYLE



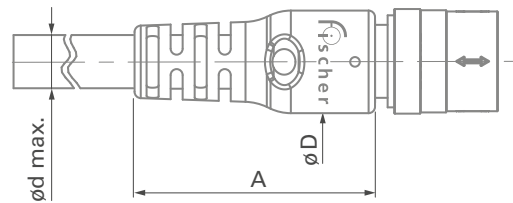
Size	Locking	ød	øD	A	B	~ C
06	Push-pull	8.5	9.9	10.1	12.8	25
	Quick-release	8.5	9.9	10.1	13.6	25
	Screw	8.5	9.9	10.1	14.0	25
08	Push-pull	10.5	12.9	10.1	12.8	25
	Quick-release	10.5	12.9	10.1	13.6	25
	Screw	10.5	12.9	10.1	14.0	25

DIMENSIONS OF OVERMOLDING¹⁾

CABLE MOUNTED

MP11-L/S/Q – MR50-L/S/Q

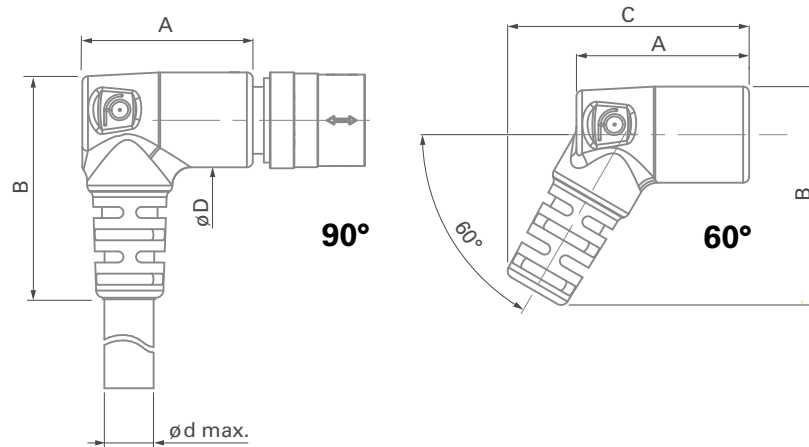
STRAIGHT OVERMOLDING



Size	Angle	$\varnothing d \text{ max.}$	$\varnothing D$	A	B	C
06	Straight	5.8	10.8	30	-	-
	60°	5.8	10.8	23	29.1	32.2
	90°	5.8	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	-

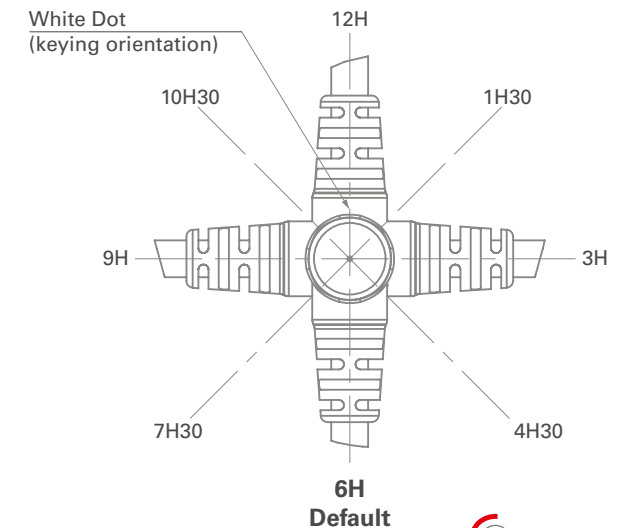
MP11-L/S/Q

RIGHT ANGLE & 60° OVERMOLDING



8 POSITIONS

ORIENTATION PARALLEL TO PANEL



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.

RECEPTACLES

CABLE MOUNTED



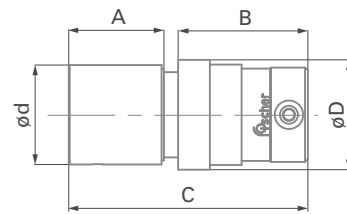
Body style		MR50-L	MR50-S	MR50-Q	References to detailed information
Protection	Sealed up to IP68	●	●	●	Sealing categories, page A-6
	Hermetic				
Locking system	Push-pull	●			
	Quick-release			●	
	Screw		●		
Termination	Crimp contact				Electrical & contact configurations, page J-16
	Solder contact	●	●	●	
Housing	Nickel ANTHRACITE	●	●	●	Part numbering, page J-18
	Chrome BLACK	●	●	●	
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-19 and J-20
	Protective sleeves				
	Sealing caps	●	●	●	
Size	06	●	●	●	Technical dimensions, page J-11 For more information visit our website www.fischerconnectors.com/technical
	08	●	●	●	

RECEPTACLES

CABLE MOUNTED

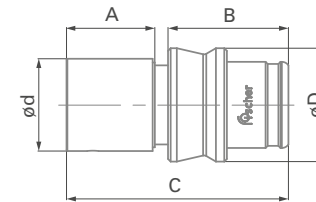
MR50-L / PUSH-PULL

BODY STYLE



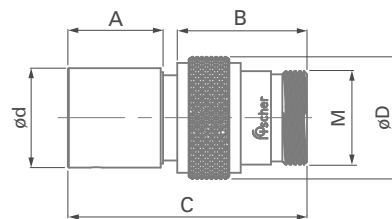
MR50-Q / QUICK-RELEASE

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

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

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	Nickel ANTHRACITE	●	●	●	●	●	●	Part numbering, page J-18
	Chrome BLACK	●	●	●				
Design	Right-angle							Body styles, chapter J
	Flush							
	Front-projecting	●	●	●	●	●	●	
	Bulkhead feedthrough						●	
Assembly	Front-mounting							
	Rear-mounting	●	●	●	●	●	●	
Accessories	Sealing caps	●	●	●	●	●	●	Accessories, page J-19 and J-20
	Spacers							
	Color-coded washers							
	Grounding washers							
	Locking washers							
Size	06	●	●	●	●	●	●	Technical dimensions, page J-13 to J-15
	08	●	●	●	●	●	●	

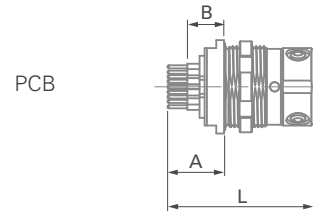
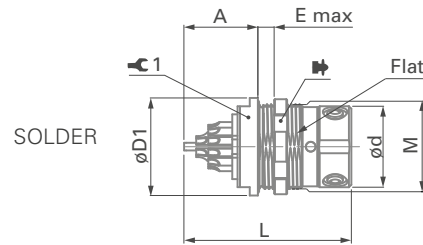
For more information visit our website www.fischerconnectors.com/technical

RECEPTACLES

PANEL REAR MOUNTED

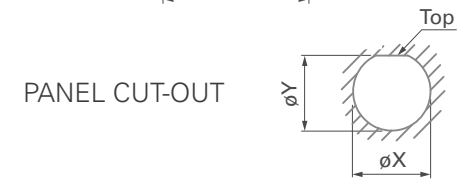
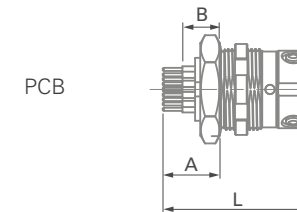
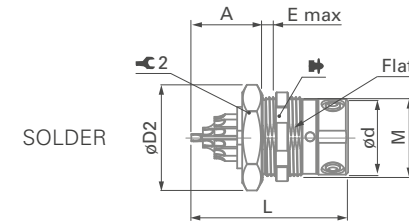
MR11-L / PUSH-PULL

BODY STYLE



MR12-L / PUSH-PULL

BODY STYLE



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

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

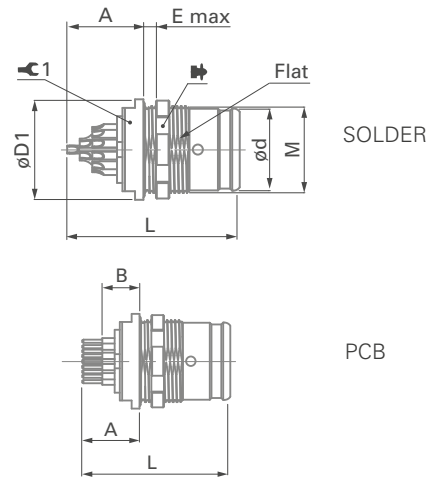
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PANEL REAR MOUNTED

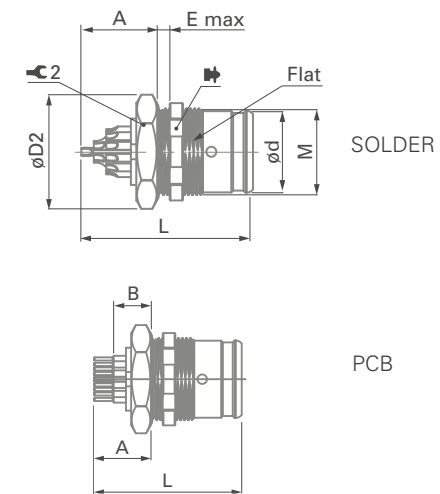
MR11-Q / QUICK-RELEASE

BODY STYLE

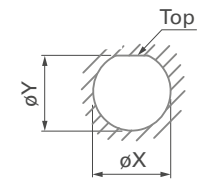


MR12-Q / QUICK-RELEASE

BODY STYLE



PANEL CUT-OUT



Size	Locking	Termination	ød	øD1	øD2	A	B	L	E max	M Panel thread	C1	C2	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

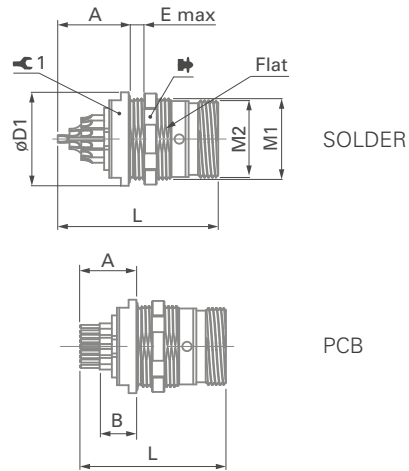
Size	X	Y
06	8.58 +0.1/0	8.25 +0.1/0
08	10.45 +0.1/0	10.2 +0.1/0

RECEPTACLES

PANEL REAR MOUNTED

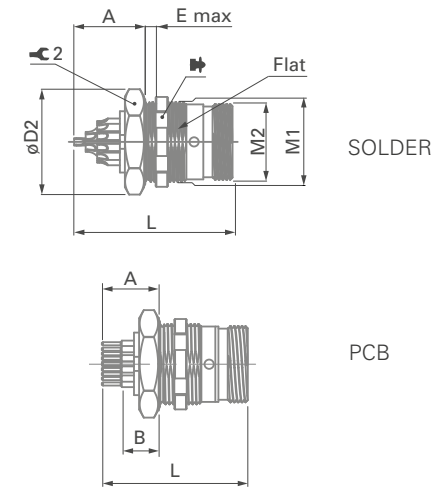
MR11-S / SCREW-LOCKING

BODY STYLE

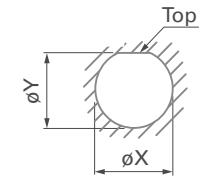


MR12-S / SCREW-LOCKING

BODY STYLE



PANEL CUT-OUT



Size	Locking	Termination	øD1	øD2	A	B	L	E max	M1 Panel thread	M2 Locking thread	κ ₁	κ 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

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

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

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			
				Solder contacts					Pin diameter [mm]	IEC 60512-5-2-5b ²⁾	IEC 60664-1 ³⁾	AC r.m.s.
						IEC 60512-5-2-5b ²⁾	IEC 60664-1 ³⁾	Contact to body				Contact to contact
06		4	2	0.5	Max ø0.70 mm – AWG28 [7/36]	0.4	1.0	≤250	1.4	1.2	2.3	1.9
			2	1.3	Max ø1.33 mm – AWG18 [19/30]	0.7	10					
		12	10	0.5	Max ø0.43 mm – AWG30 [7/38]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
			2	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
08		8	0.5	Max ø0.70 mm – AWG24 [19/36]		0.4	3.8	≤250	1.6	1.6	2.2	2.2
				9	7							
		19	15		0.5	Max ø0.70 mm – AWG28 [7/36]	0.4	1.0	≤250	0.9	0.9	1.5
			4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
		19	13+2 ⁴⁾	0.5	Max ø0.70 mm – AWG28 [7/36]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
			4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0					
		24	20	0.5	Max ø0.43 mm – AWG30 [7/38]	0.4	1.0	≤250	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 – AWG30 [7/38]	0.4	1.0	≤250	0.9	0.9	1.5	1.2	
		4	0.5	Max ø0.70 mm – AWG24 [19/36]	0.4	5.0						

¹⁾ Stranding values in brackets. Wire size information is based on Fischer Connectors standard cabling recommendation for configuration with 2 or 4 power contacts.

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 A12 for details.

³⁾ Recommended operating voltage at sea level. This rated voltage is a general where guideline where no other electrical safety standard applies. In case where other standards rule a specific use of the connector, Any application-specific safety criteria must take priority in situations where other . This must be evaluated in the frame of equipment engineering.

⁴⁾ Two advanced signal contacts for USB power are available for Solder (S) or PCB (P) receptacles.

⁵⁾ USB 3.0 contact block comes with two advanced power contacts on the plug side (MP11) as standard.

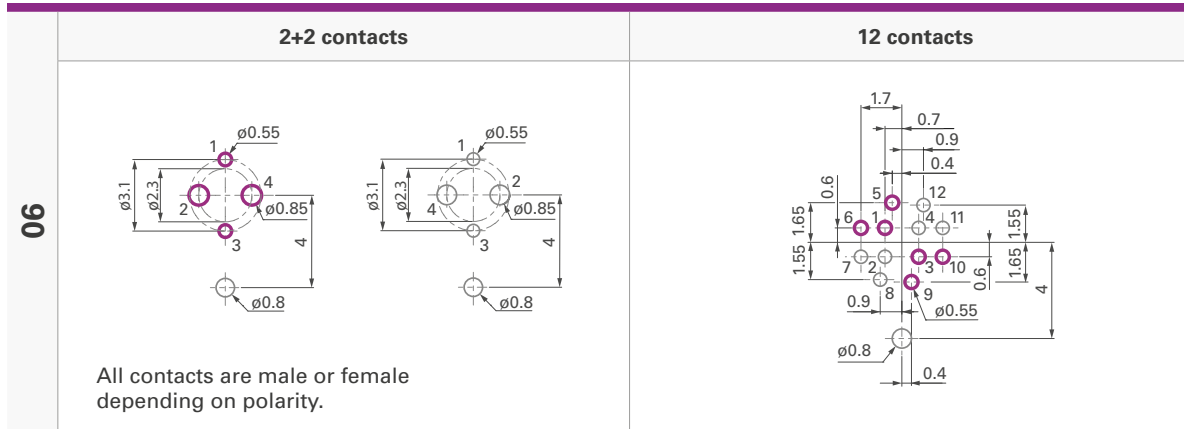
PLUGS	Size 06			
	Code 1	Code 2	Code 3	Code 4
Visual coding	■	■	■	■

Size 08			
Code 1	Code 2	Code 3	Code 4
■	■	■	■



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

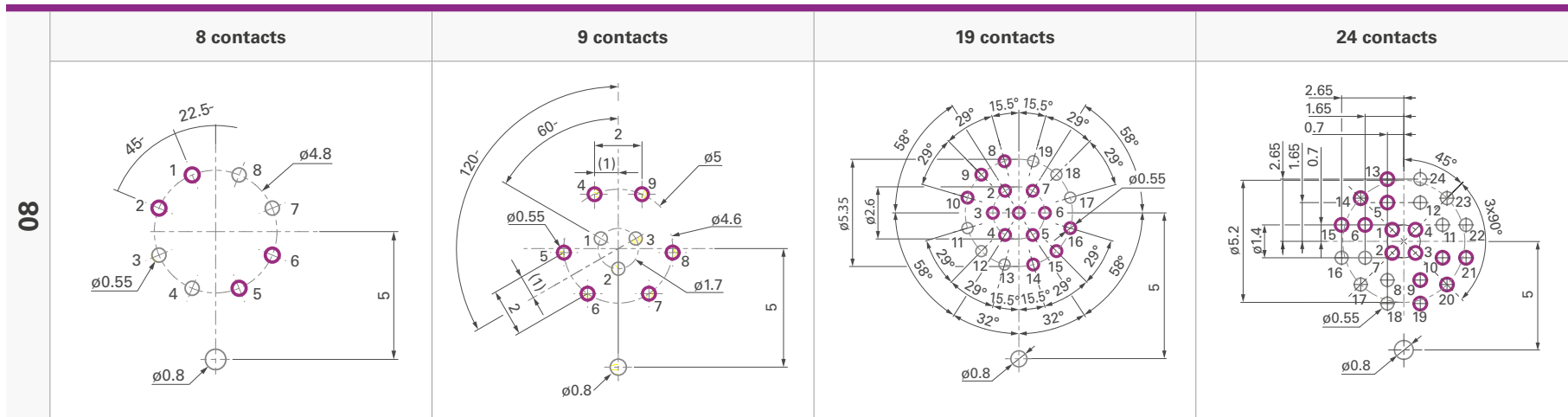
View from the back of the plug/front of receptacle (guide mark at 12 o'clock)



Recommended wiring

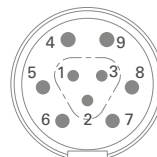
	2+2	8	12	19	24
Power	2 ; 4	any2	5 ; 9	9; 12; 15; 18 ¹⁾	14; 17; 20; 23
Ethernet	-	1/2; 3/4; 5/6; 7/8 ¹⁾	1/6; 3/10; 7/8; 11/12 ¹⁾	8/19; 10/11; 13/14; 16/17 ¹⁾	15/16; 18/19; 21/22; 13/24 ¹⁾
Advanced pin	2 ; 4	-	-	13;19 ²⁾	18;24 ²⁾

¹⁾ Recommended
²⁾ Optional on MR11 / MR12



	Contacts	
	Plugs	Receptacles
	Male	Female
	Female	Male

USB Signal name ³⁾



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

³⁾ RX/TX labelling of Fischer Rugged Flash Drive.

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

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

PLUGS & RECEPTACLES

Example:	Connector design				Contact block	Housing		Standard options			
	MP11	Z	L	08	0420	BK	1	Z	1	A	S
	MR11	W	S	08	2017	BK	2	E	1	A	P
	MR50	Z	Q	08	0019	BK	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

Sealing level

MP11, MR50

- **Z** = not applicable

MR11, MR12

- **W** = water sealing (IP68)

Locking system

MiniMax plug & receptacle

- **L** = Push-pull locking
- **S** = Screw-locking
- **Q** = Quick-release

Connector size

- **06** = Size 6
- **08** = Size 8

Number of contacts (see page J-6)

- **Digit 1** = Advanced contacts (if applicable)
- **Digit 2** = Power contacts (where physically larger than the other contacts)
- **Digit 3+4** = Remaining contacts

Termination

MP11, MR50

- **S** = Solder contact

MR11, MR12

- **P** = PCB contact
- **S** = Solder contact

Contact bloc

- **A** = Hermaphroditic (both MR and MP need to be "A")
- **F*** = Female contacts
- **M*** = Male contacts

* only for size 06 configuration 0202
(if MR = "F" then MP = "M"; if MR = "M" then MP = "F")

Insulating material

- **1** = PEEK

Interface O-ring material

MP11

- **Z** = Not applicable

MR11, MR12, MR50

- **E** = EPDM

Keying code

- **1** = Code 1 (insulator= Beige)
- **2** = Code 2 (insulator= Black)
- **3** = Code 3 (insulator= Beige)
- **4** = Code 4 (insulator= Black)

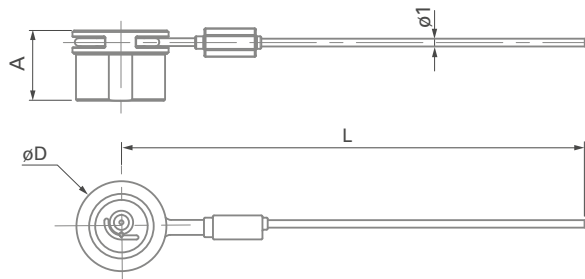
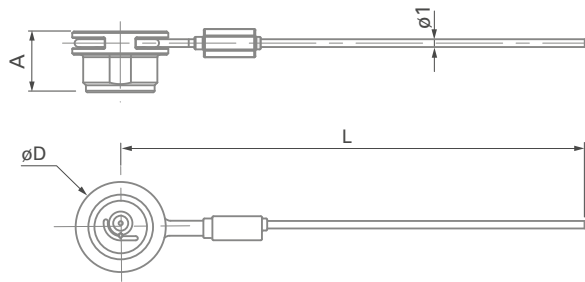
Housing color

- **AN** = Anthracite
- **BK** = Black ¹⁾

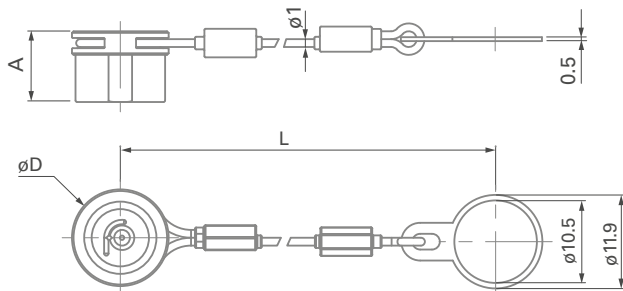
¹⁾ MR12 body style not available in Black (BK). Please contact your local sales representative.

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

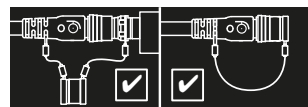
¹⁾Crimp ferrule and heat shrink tube are included.

06	MR50 ¹⁾		●	●	●	9.0	10.0	200	MCR06C 1B2 A200 AA
08			●	●	●	9.0	12.3	200	MCR08C 1B2 A200 AA

¹⁾Crimp ferrule and heat shrink tube are included.

06	MR11 ¹⁾ MR12 ¹⁾		●	●	●	9.0	10.0	95	MCR06P 1B2 A095 AA
08	MR11 ¹⁾ MR12 ¹⁾		●	●	●	9.0	12.3	95	MCR08P 1B2 A095 AA

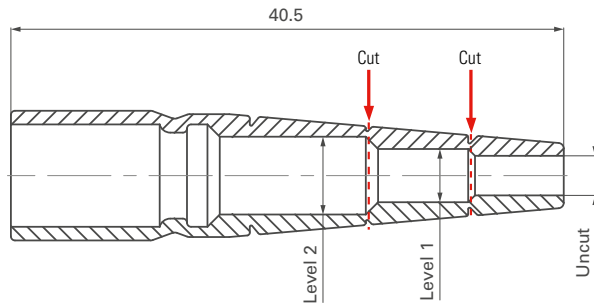
¹⁾Crimp ferrule, heat shrink tube and mounting ring are included.



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.

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

STRAIGHT BEND RELIEF

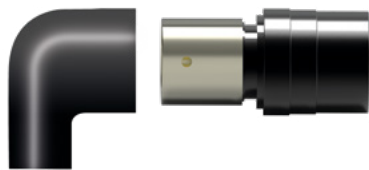


CUTTING DIAMETERS

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

MINIMAX

RIGHT-ANGLED HEAT SHRINKING TUBE



Size	Heat shrinking tube reference
06	Hellermann Tyton 1108-4-G BK 24-6
08	Hellermann Tyton 1152-4-G BK 24-6

PC-BOARD TERMINATION



- Rigid flex solution available for SMD connectors
- Compatible with signal & power
- Available for 19 & 24 pin configuration. Custom design and other configurations available upon request. Contact your Fischer Connectors sales representative.

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		

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

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

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
130253	MiniMax tool kit Size 08

MATERIAL & SURFACE FINISH

Metal components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Housing, Nut		Brass CuZn39Pb3	CW614N UNS C 38500	Black Chrome over Nickel Anthracite Nickel	SAE-AMS2460 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 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.

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance mated and unmated	IP68, 20 m/24 h water sealing <10 ⁻⁶ mbar. l/sec 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	MIL-STD-202 G Method 204D Condition B
Unlocking Force (Quick-release version only)	Size 06 = Typical 25 N±40% Size 08 = Typical 35 N±40%	
Shock	300 g	MIL-STD-202 G Method 213

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
	BLACK	<50 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.

