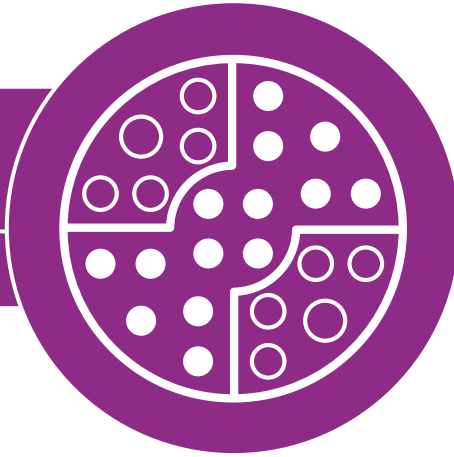


# J

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

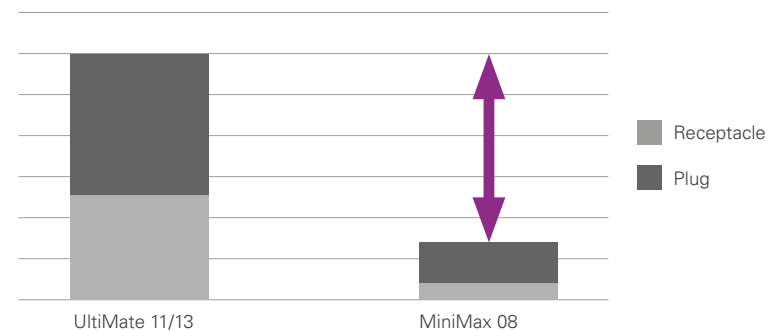
COMPARED TO STANDARD RECEPTACLES  
WITH SIMILAR NUMBER OF CONTACTS



**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.

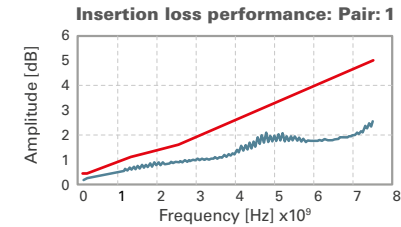
- AWG24, compatible with long range standard Ethernet cables
- Symmetrical hermaphroditic contact block
- 0.5mm contacts



**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 2m.

- Advanced power contacts
- Hermaphroditic contact block
- 0.5mm 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 2m cable
USB 3.0 	NO	YES	NO	YES	YES	YES	Application dependent
	NO	NO	NO	<b>YES</b>	NO	NO	Full spec up to 2m cable
ETHERNET 10Gb/s 	NO	YES	YES	NO	YES	YES	Ethernet AWG28
	NO	NO	<b>YES</b>	NO	NO	NO	Ethernet AWG24
HDMI 	NO	NO	NO	NO	YES	YES	HDMI 1.4

## RELIABILITY

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



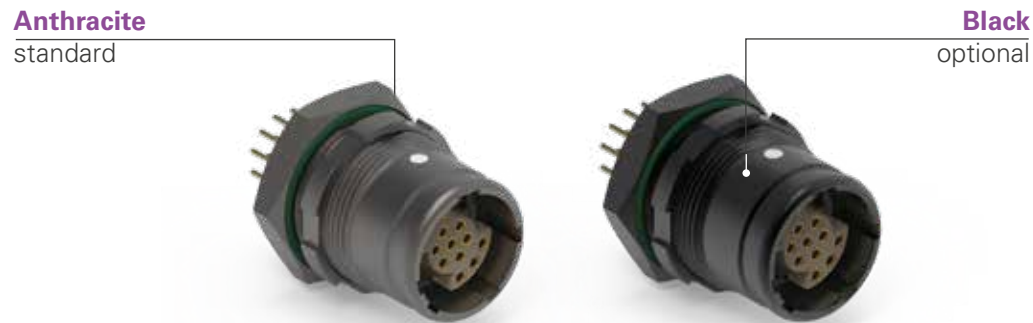
\*The standard sealing level can be achieved on all MiniMax receptacles when correctly integrated. For cabled plugs, the sealing level depends on the quality of the assembly process and the size and type of cable being used for the plug assembly.

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

## HOUSING COLORS

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

- 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.



MINIMAX

## 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. 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	Mates with	0202 xxMx
	0202 xxMx		0202 xxFx
	0210		0210
08	0008		0008
	0009		2007
	0019		0019
	2017		
	0420 2418		0420

**PLUGS**

**CABLE MOUNTED**



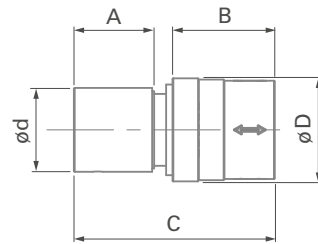
Body style		MP11-L	MP11-S	MP11-Q	References to detailed information
Protection	Sealed up to IP68	●	●	●	Sealing categories, page A-6
	Hermetic				
Locking system	Push-pull	●			
	Quick-release			●	
	Screw		●		
Contacts	Crimp				Electrical & contact configurations, page J-16
	Solder	●	●	●	
Housing color	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-8 and J-9 For more information visit our website <a href="http://www.fischerconnectors.com/technical">www.fischerconnectors.com/technical</a>
	08	●	●	●	

**PLUGS**

**CABLE MOUNTED**

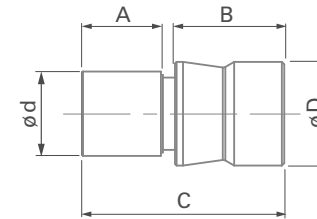
**MP11-L / PUSH-PULL**

BODY STYLE



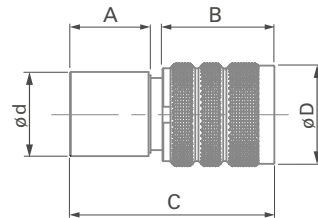
**MP11-Q / QUICK-RELEASE**

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

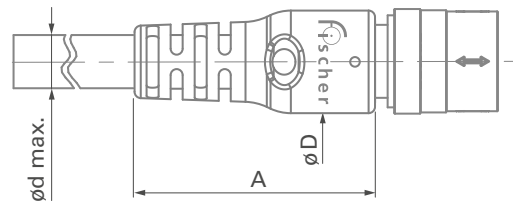


**DIMENSIONS OF OVERMOLDING<sup>1)</sup>**

**CABLE MOUNTED**

**MP11-L/S/Q – MR50-L/S/Q**

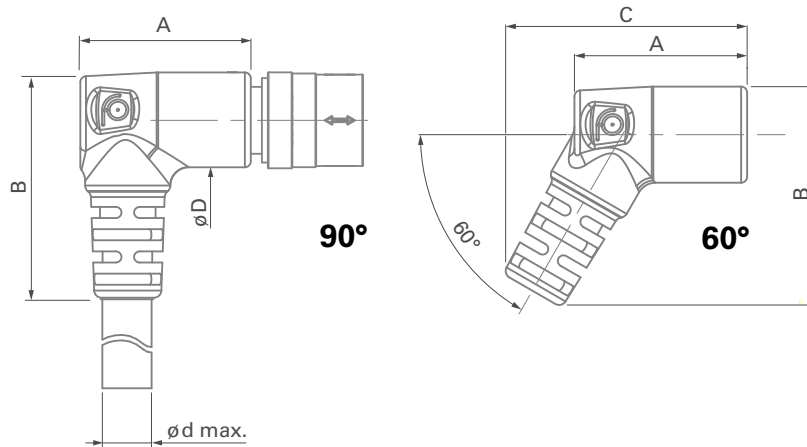
STRAIGHT OVERMOLDING



Size	Angle	$\varnothing d \text{ max.}$	$\varnothing D$	A	B	C
06	Straight	4.7	10.8	30	-	-
	60°	4.7	10.8	23	29.1	32.2
	90°	4.7	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	-

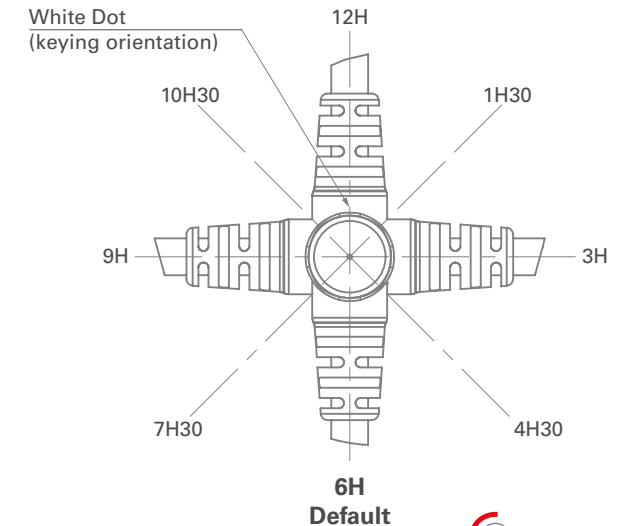
**MP11-L/S/Q**

RIGHT ANGLE & 60° OVERMOLDING



**8 POSITIONS**




ORIENTATION PARALLEL TO PANEL



<sup>1)</sup> 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**

<b>CABLE MOUNTED</b>					
<b>Body style</b>		<b>MR50-L</b>	<b>MR50-S</b>	<b>MR50-Q</b>	<b>References to detailed information</b>
<b>Protection</b>	<b>Sealed up to IP68</b>	●	●	●	Sealing categories, page A-6
	<b>Hermetic</b>				
<b>Locking system</b>	<b>Push-pull</b>	●			
	<b>Quick-release</b>			●	
	<b>Screw</b>		●		
<b>Contacts</b>	<b>Crimp</b>				Electrical & contact configurations, page J-16
	<b>Solder</b>	●	●	●	
<b>Housing</b>	<b>Nickel ANTHRACITE</b>	●	●	●	Part numbering, page J-18
	<b>Chrome BLACK</b>	●	●	●	
<b>Design</b>	<b>Shortened body</b>				Body styles, chapter J
	<b>60° angle</b>	●	●	●	
	<b>Straight</b>	●	●	●	
	<b>Right-angle</b>	●	●	●	
<b>Cabling</b>	<b>Cable clamp sets</b>				-
	<b>Overmoldable</b>	●	●	●	
	<b>Heat shrinkable</b>	●	●	●	
<b>Accessories</b>	<b>Cable bend reliefs</b>	●	●	●	Accessories, page J-19 and J-20
	<b>Protective sleeves</b>				
	<b>Sealing caps</b>	●	●	●	
<b>Size</b>	<b>06</b>	●	●	●	Technical dimensions, page J-11
	<b>08</b>	●	●	●	

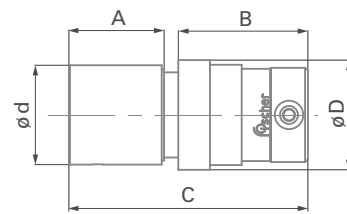
For more information visit our website [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical)

## RECEPTACLES

### CABLE MOUNTED

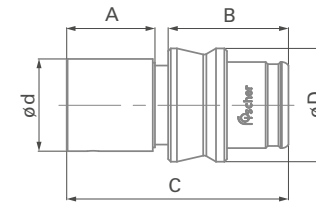
#### MR50-L / PUSH-PULL

BODY STYLE



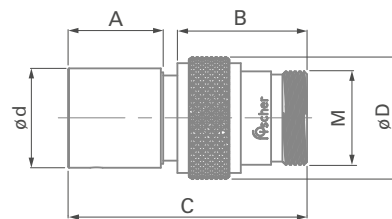
#### MR50-Q / QUICK-RELEASE

BODY STYLE



#### MR50-S / SCREW-LOCKING

BODY STYLE



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

**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							
Contacts	Crimp							Electrical & contact configurations, page J-16
	Solder	●	●	●	●	●	●	
	PCB	●	●	●	●	●	●	
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	●	●	●	●	●	●	

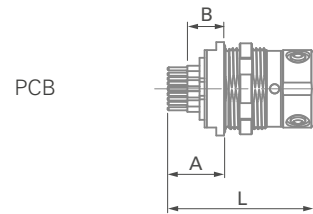
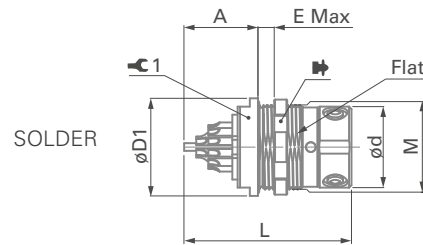
For more information visit our website [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical)

**RECEPTACLES**

**PANEL REAR MOUNTED**

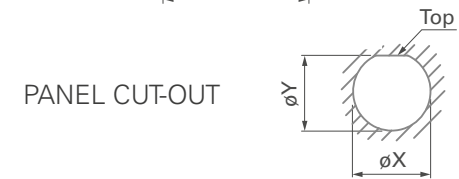
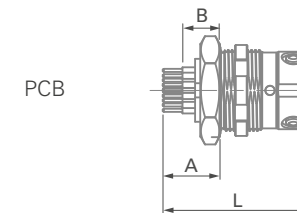
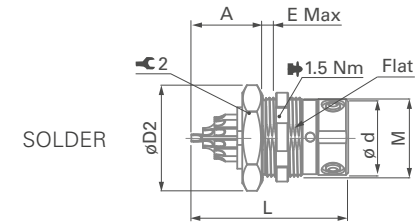
**MR11-L / PUSH-PULL**

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	8.0	10.0	11.4	7.6	-	19.1	3.0	M8.5x0.35	8	10	1.0Nm
		PCB	8.0	10.0	11.4	7.3	4.7	18.8	3.0	M8.5x0.35	8	10	1.0Nm
08	Push-pull	Solder	10.0	12.0	13.7	9.1	-	20.6	3.0	M10.5x0.5	10	12	1.5Nm
		PCB	10.0	12.0	13.7	7.3	4.7	18.8	3.0	M10.5x0.5	10	12	1.5Nm

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

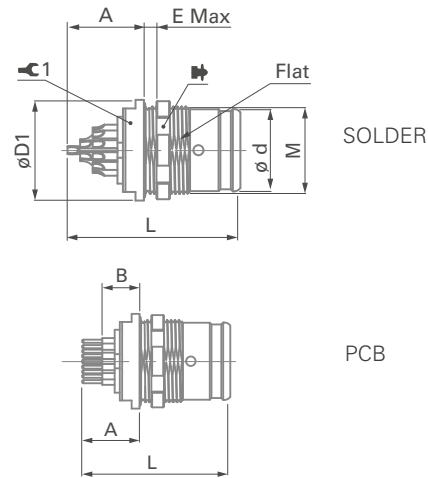
All dimensions and images shown are in millimeters and are for reference only.

**RECEPTACLES**

**PANEL REAR MOUNTED**

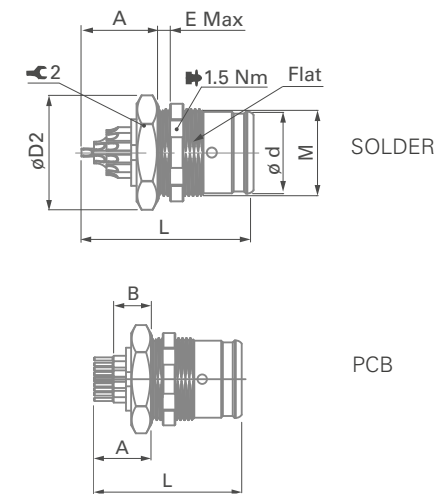
**MR11-Q / QUICK-RELEASE**

BODY STYLE

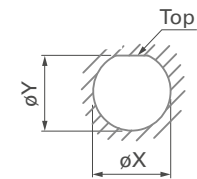


**MR12-Q / QUICK-RELEASE**

BODY STYLE



PANEL CUT-OUT



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

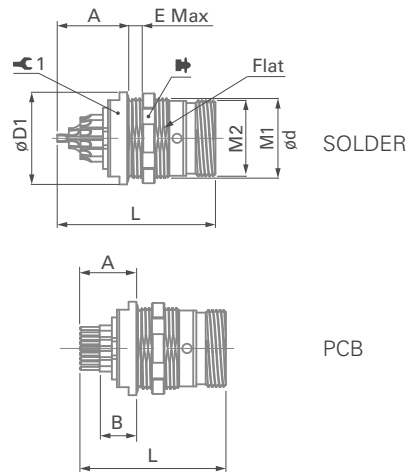
Size	X	Y
06	8.58+0.1/0	8.25+0.1/0
08	10.45+0.1/0	10.2+0.1/0

**RECEPTACLES**

**PANEL REAR MOUNTED**

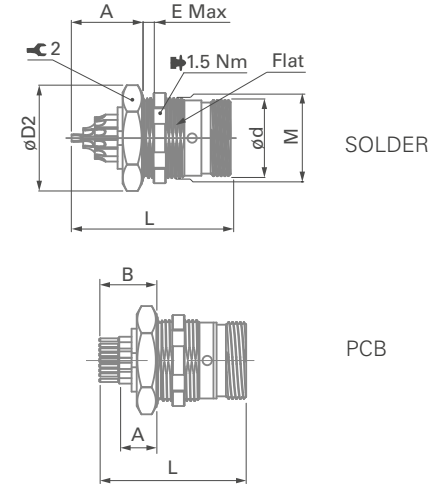
**MR11-S / SCREW-LOCKING**

BODY STYLE

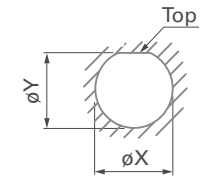


**MR12-S / SCREW-LOCKING**

BODY STYLE



PANEL CUT-OUT



Size	Locking	Termination	ød	øD1	øD2	A	B	L	E max.	M Panel thread	M2 Locking thread	1	2	Torque
06	Screw	Solder	8.0	10.0	11.4	7.6	N/A	19.1	2.3	M8.5x0.35	M8x2	8	10	1.0Nm
		PCB	8.0	10.0	11.4	7.3	4.7	18.8	2.3	M8.5x0.35	M8x2	8	10	1.0Nm
08	Screw	Solder	10.4	12.0	13.7	9.1	-	20.6	2.3	M10.5x0.5	M10x2	10	12	1.5Nm
		PCB	10.4	12.0	13.7	7.3	4.7	18.8	2.3	M10.5x0.5	M10x2	10	12	1.5Nm

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 <sup>1)</sup>	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 <sup>2)</sup>	IEC 60664-1 <sup>3)</sup>	AC r.m.s.		DC	
								Contact to body	Contact to contact	Contact to body	Contact to contact
06		2	0.5	maxø .70mm – AWG28 [7/36]	0.4	1.0	≤250	1.4	1.2	2.3	1.9
		2	1.3	maxø 1.33mm – AWG18 [19/30]	0.7	10					
	12	10	0.5	maxø .43mm – AWG30 [7/38]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
		2	0.5	maxø .70mm – AWG24 [19/36]	0.4	5.0					
08		8	0.5	maxø .70mm – AWG24 [19/36]	0.4	3.8	≤250	1.6	1.6	2.2	2.2
		7	0.5	maxø .43mm – AWG28 [19/40]	0.4	1.0	≤250	1.5	1.2	2.4	1.8
		2 <sup>5)</sup>	0.5	maxø .70mm – AWG24 [19/36]	0.4	5.0					
		15	0.5	maxø .70mm – AWG28 [7/36]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
		4	0.5	maxø .70mm – AWG24 [19/36]	0.4	5.0					
		13+2 <sup>4)</sup>	0.5	maxø .70mm – AWG28 [7/36]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
		4	0.5	maxø .70mm – AWG24 [19/36]	0.4	5.0					
		20	0.5	maxø .43mm – AWG30 [7/38]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
		4	0.5	maxø .70mm – AWG24 [19/36]	0.4	5.0					
		18+2 <sup>4)</sup>	0.5	maxø .43mm – AWG30 [7/38]	0.4	1.0	≤250	0.9	0.9	1.5	1.2
4		0.5	maxø .70mm – AWG24 [19/36]	0.4	5.0						

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

<sup>2)</sup> 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.

<sup>3)</sup> 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.

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

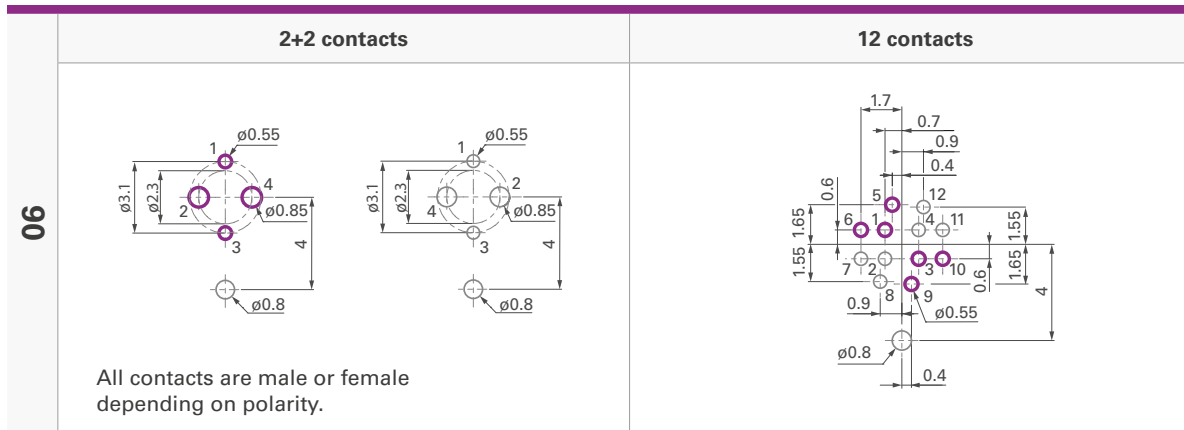
<sup>5)</sup> USB3.0 contact block comes with two advanced power contacts on the plug side (MP11) as standard.

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

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



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

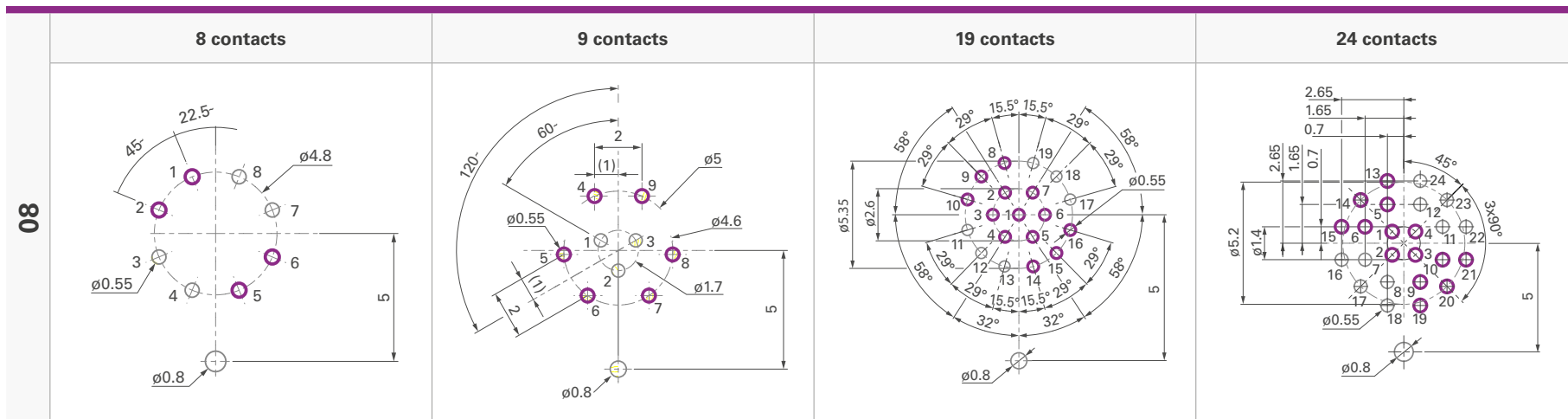


**Recommended wiring**

	2+2	8	12	19	24
<b>Power</b>	2 ; 4	any2	5 ; 9	9; 12; 15; 18 1)	14; 17; 20; 23
<b>Ethernet</b>	-	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)
<b>Advanced pin</b>	2 ; 4	-	-	13;19 2)	18;24 2)

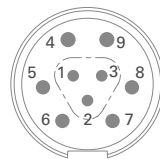
1) Recommended

2) Optional on MR11 / MR12



	Contacts	
	Plugs	Receptacles
	Male	Female
	Female	Male

**USB Signal name <sup>3)</sup>**



- 1) USB2.0 D-
- 2) SS drain
- 3) USB2.0 D+
- 4) Vbus 5V
- 5) SS Rx+
- 6) SS Rx-
- 7) SSTx+
- 8) SSTx-
- 9) Vbus GND

<sup>3)</sup> For receptacles used as host connector for Fischer Rugged Flash Drive.

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

**Contact 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

**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)

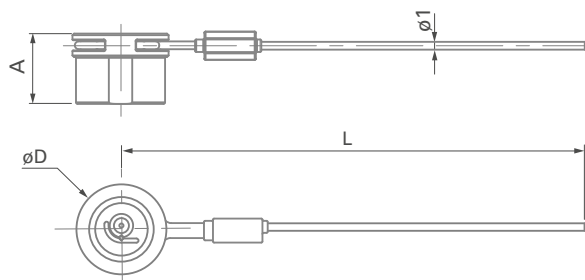
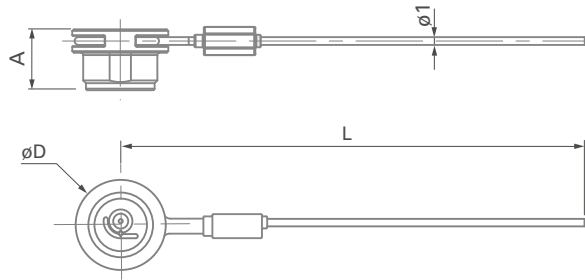
**Housing color**

- AN = Anthracite
- BK = Black

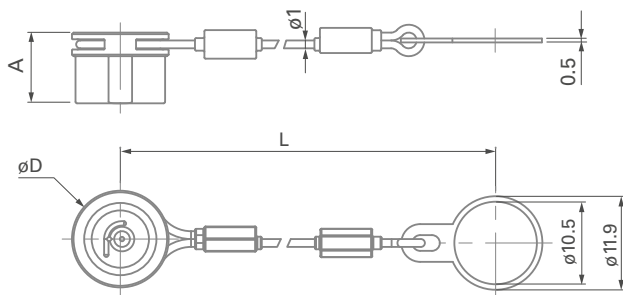
MINIMAX

## SOFT CAPS

### CABLE MOUNTED



### PANEL MOUNTED



Size	Body style	Images	Push-pull	Quick-release	Screw-lock	A	øD	L	Part number
06	MP11 <sup>1)</sup>		●			9.6	10.0	200	MCP06C 1B2 A200 AA
				●	●	9.6	12.3	200	MCP06C 1B2 A200 BA
08	MP11 <sup>1)</sup>		●			7.8	10.0	200	MCP08C 1B2 A200 AA
				●	●	7.8	12.3	200	MCP08C 1B2 A200 BA

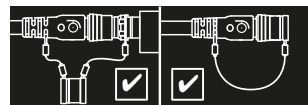
<sup>1)</sup> Crimp ferrule and heat shrink tube are included.

06	MR50 <sup>1)</sup>		●	●	●	9.0	10.0	200	MCR06C 1B2 A200 AA
08	MR50 <sup>1)</sup>		●	●	●	9.0	12.3	200	MCR08C 1B2 A200 AA

<sup>1)</sup> Crimp ferrule and heat shrink tube are included.

06	MR11 <sup>1)</sup> MR12 <sup>1)</sup>		●	●	●	9	10	95	MCR06P 1B2 A095 AA
08	MR11 <sup>1)</sup> MR12 <sup>1)</sup>		●	●	●	9.0	12.3	95	MCR08P 1B2 A095 AA

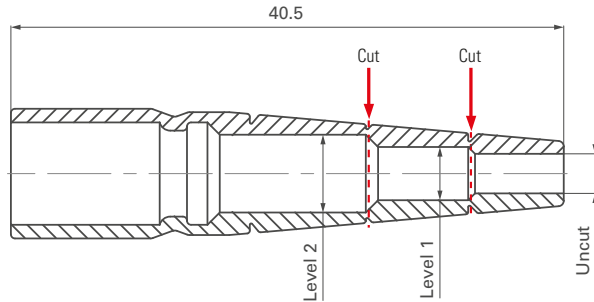
<sup>1)</sup> Crimp ferrule, heat shrink tube and mounting ring are included.



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	M10.5 x 0.5	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	M10.5 x 0.5	13	16	12

Material – Hardened Tool Steel, Nickel plated and plastic.

**CABLE ASSEMBLY**



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

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

## MATERIAL & SURFACE TREATMENT

Metal components	Material		Finish	
	Designation ISO	Standard	Designation	Standard
<b>Housing, Nut</b>	Brass CuZn39Pb3	CW614N UNS C 38500	Black Chrome over Nickel Anthracite Nickel	SAE-AMS2460 SAE-AMS2404 SAE-AMS-QQ-N-290
<b>Back nut (MP11, MR50)</b>	Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290B SAE-AMS2404G
<b>Ground contact</b>	Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290B SAE-AMS2404G
<b>Push-pull locking spring Quick-release locking spring</b>	Stainless steel	X10CrNi18-8 (1.4310)	-	-
<b>Contacts</b>	- Male, Ground Pin	Brass CuZn39Pb3	CW614N; UNS C 38500	1µm Gold over Nickel MIL-DTL-45204D Type I; ASTM B488
	- Female	Bronze CuSn4Zn4Pb4	CW456K; ASTM B139 UNS C 54400	1µm Gold over Nickel MIL-DTL-45204D Type I; ASTM B488
<b>Ball-locking</b>	Ceramic Si3N4	-	-	-

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

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

## ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
<b>Sealing performance</b> mated and unmated	IP68, 20m/24h water sealing <10 <sup>-6</sup> mbar. l/sec gas sealing	IEC 60529
<b>Sealing performance Soft Cap</b>	IP67; 15cm submersion for 30 min	IEC 60529
<b>Operating temperature range <sup>1)</sup></b>	-40°C to +135°C	IEC 60512-6-1 IEC 60068-2-14-Nb
<b>Corrosion resistance mated</b>	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
<b>Endurance</b>	5,000 mating cycles Preserved mechanical and electrical functionality. Normal wear will appear.	IEC 60512-9-1
<b>Vibration</b> (Screw-locking version only)	10 to 2,000 Hz, 1.5mm or 15g, 12 sweep cycles per axis, 20 minutes per 10-2,000-10 Hz sweep cycle, no discontinuity >1µs	MIL-STD-202 G Method 204D Condition B
<b>Unlocking Force</b> (Quick-release version only)	Size 06 = Typical 25N±40% Size 08 = Typical 35N±40%	
<b>Shock</b>	300g	MIL-STD-202 G Method 213

<sup>1)</sup> Minimum mating temperature: -20°C

## ELECTRICAL DATA

Characteristic	Performance	Standard
<b>Contact resistance</b>	5 mΩ (typical value)	IEC 60512-2-1-2a; IEC 60512-2-2-2b
<b>Shell resistance <sup>2)</sup></b>	ANTRHACITE	<5 mΩ (Cabled) IEC 60512-2-6-2f
	BLACK	<50 mΩ (Cabled) IEC 60512-2-6-2f
<b>Insulation resistance</b>	>10 <sup>10</sup> Ω	IEC 60512-3-1-3a
<b>Shielding effectiveness</b>	360° shielded	-

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

