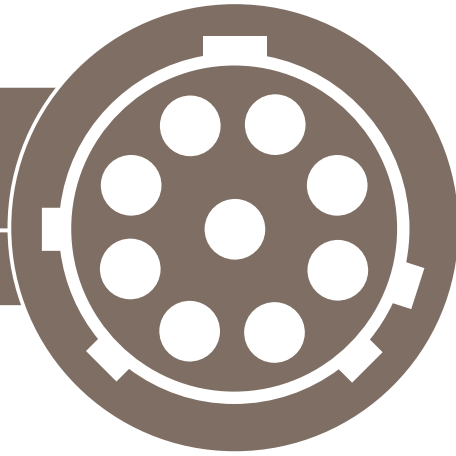


# H

## CHAPTER



# FISCHER ULTIMATE™ SERIES

RUGGED | COMPACT | LIGHTWEIGHT

### KEY FEATURES

- IP68 2m/24h / IP69 / Hermetic
- 360° EMC shielding
- High corrosion resistance
- Up to 10,000 mating cycles

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- ULTIMATE 80 table of contents ..... H-33



# ULTIMATE



## PLUGS



### CABLE MOUNTED

- Body styles (UP01-L; UP01-Q)..... H-4
- Technical dimensions ..... H-5



### PANEL FRONT MOUNTED

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- Technical dimensions ..... H-7

## RECEPTACLES



### CABLE MOUNTED

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- Technical dimensions ..... H-9



### PANEL REAR MOUNTED

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



### PANEL FRONT MOUNTED

- Body styles (UR03)..... H-10
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- Tooling ..... H-30
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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



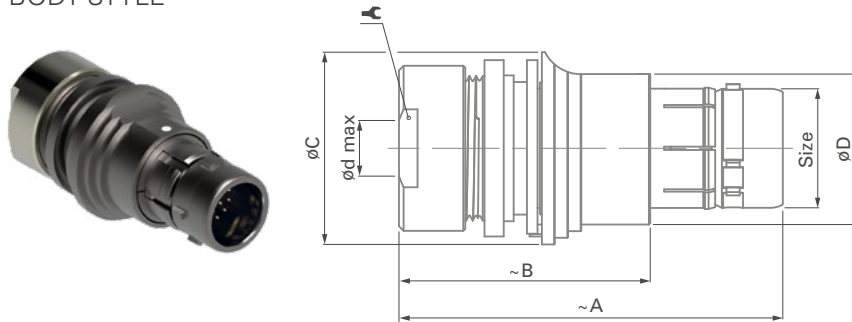
Body style		UP01	References to detailed information
Protection	Sealed up to IP68	●	Sealing categories, page A-6
	Hermetic		
Locking system	Friction		Locking systems, page A-5
	Push-pull	●	
	Quick-release	●	
	Lanyard		
	Tamperproof		
Termination	Crimp contact	●	Electrical & contact configurations, pages H-13 to H-18
	Solder contact	●	
Housing material	Brass	●	Part numbering, page H-26
	Aluminum	●	
Housing material	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 <a href="http://www.fischerconnectors.com/technical">www.fischerconnectors.com/technical</a>
	08	●	
	11	●	
	13	●	
	15	●	
	18	●	

## 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

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

**PLUGS**

**PANEL FRONT MOUNTED**



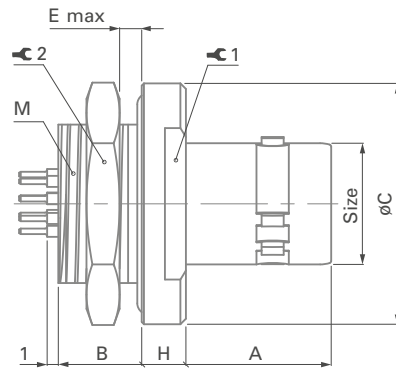
Body style		UP50	References to detailed information
Protection	Sealed up to IP68	●	Sealing categories, page A-6
	Hermetic		
Locking system	Friction	●	Locking systems, page A-5
	Push-pull		
	Quick-release		
	Lanyard		
	Tamperproof		
Termination	Crimp contact		Electrical & contact configurations, pages H-13 and H-15
	Solder contact	●	
Housing material	Brass	●	Part numbering, page H-26
	Aluminum	●	
Housing color	Anthracite	●	Part numbering, page H-26
	Black		
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 <a href="http://www.fischerconnectors.com/technical">www.fischerconnectors.com/technical</a>
	11	●	

PLUGS

PANEL FRONT MOUNTED

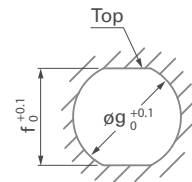
UP50

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
	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-9  For more information visit our website <a href="http://www.fischerconnectors.com/technical">www.fischerconnectors.com/technical</a>
	08	●	
	11	●	
	13	●	

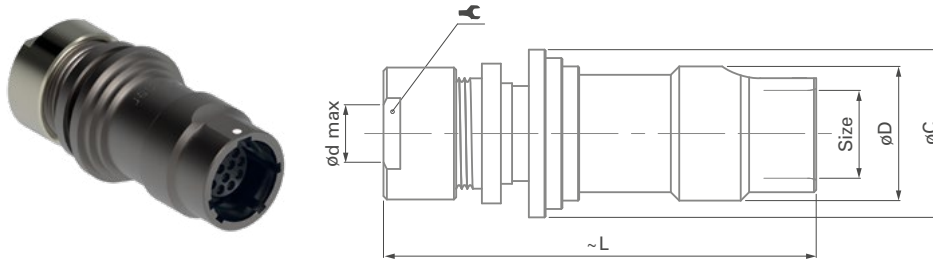


## RECEPTACLES

### 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

RECEPTACLES

PANEL MOUNTED



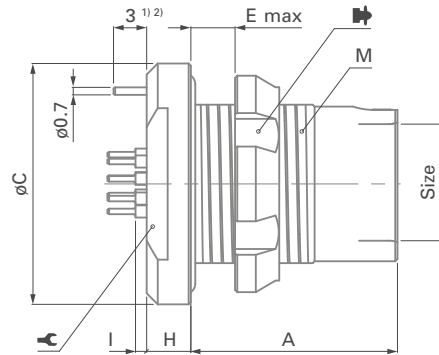
Body style		UR01	UR02	UR03	References to detailed information
Protection	Sealed up to IP68	●	●	●	Sealing categories, page A-6
	Hermetic	●	●	●	
Termination	Crimp contact				Electrical & contact configurations, page H-13 to H-18
	Solder contact	●	●	●	
	PCB contact	●	●	●	
Housing material	Brass	●	●	●	Part 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 <a href="http://www.fischerconnectors.com/technical">www.fischerconnectors.com/technical</a>
	08	●	●	●	
	11	●	●	●	
	13	●	●		
	15	●	●		
	18	●	●		

RECEPTACLES

PANEL REAR MOUNTED\*

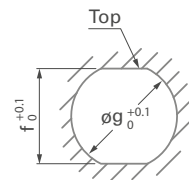
UR01

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

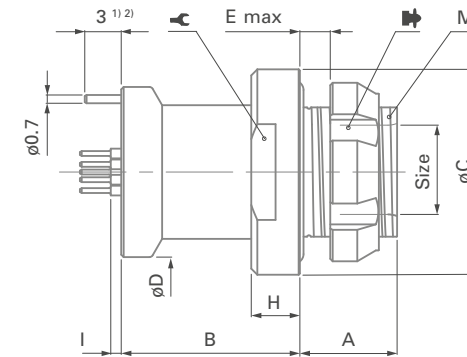
Size	f	øg
07	9.2	10.1
08	10.9	12.1
11	14.5	16.1
13	16.5	18.1
15	18.5	20.1
18	23.2	25.1



PANEL CUT-OUT

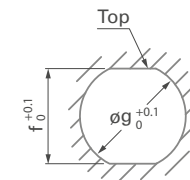
UR02

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].

<sup>1)</sup> 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])

<sup>2)</sup> 3.6 mm for size 15

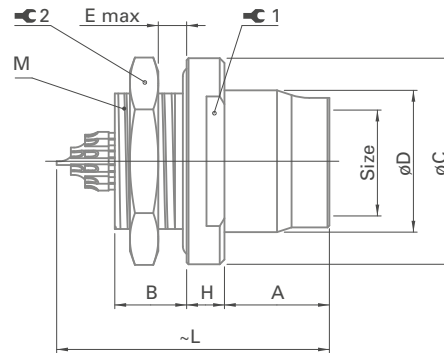
All dimensions and images shown are in millimeters and are for reference only.

## RECEPTACLES

### PANEL FRONT MOUNTED\*

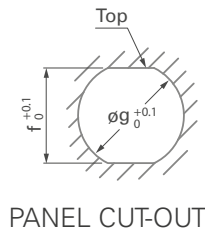
#### UR03

#### 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 <sup>3)</sup>		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					Solder contacts <sup>1)</sup>	Crimp contacts <sup>2)</sup>	Pin ø	Ground pin ø			IEC 60512-5-2-5b <sup>4)</sup>			
									IEC 60664-1 <sup>5)</sup>		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 <sup>6)</sup> 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 <sup>6)</sup> 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

<sup>1)</sup> Stranding values are in brackets.

<sup>2)</sup> See dedicated crimping instructions document for further information.

<sup>3)</sup> 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.

<sup>4)</sup> 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.

<sup>5)</sup> 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.

<sup>6)</sup> Standard polarity only.

<sup>7)</sup> 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 [mm]	Wire size <sup>3)</sup>		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					Solder contacts <sup>1)</sup>	Crimp contacts <sup>2)</sup>	Pin $\phi$	Ground pin $\phi$			IEC 60512-4-1 Test 4a			
									IEC 60512-5-2-5b <sup>4)</sup>	IEC 60664-1 <sup>5)</sup>	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
08		002	2	0.9	max $\phi$ 0.79 mm AWG21 [1] AWG22 [7/30]	-	0.70	0.7	9.2	$\leq$ 250	1.3	1.7	1.8	2.4
		003	3	0.9	max $\phi$ 0.79 mm AWG21 [1] AWG22 [7/30]	-	0.70	0.7	8.2	$\leq$ 250	1.3	1.3	1.8	1.6
		004	4	0.7	max $\phi$ 0.79 mm AWG21 [1] AWG22 [7/30]	max $\phi$ 0.62 mm min $\phi$ 0.38 mm AWG24-28	0.50	0.7	5.5	$\leq$ 200	1.2	1.2	1.7	1.8
		005	5	0.7	max $\phi$ 0.79 mm AWG21 [1] AWG22 [7/30]	max $\phi$ 0.62 mm min $\phi$ 0.38 mm AWG24-28	0.50	0.7	5.2	$\leq$ 160	0.8	1.0	1.3	1.8
		007	7	0.5	max $\phi$ 0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	4.0	$\leq$ 160	0.8	1.0	1.3	1.8
		009	9	0.5	max $\phi$ 0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	$\leq$ 160	0.8	1.1	1.2	1.8

<sup>1)</sup> Stranding values are in brackets.

<sup>2)</sup> See dedicated crimping instructions document for further information.





<sup>3)</sup> 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.

<sup>4)</sup> 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.

<sup>5)</sup> 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 [mm]	Wire size <sup>3)</sup>		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					Solder contacts <sup>1)</sup>	Crimp contacts <sup>2)</sup>	Pin ø	Ground pin ø			IEC 60512-4-1 Test 4a			
									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
		012	12	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	<sup>6) 7)</sup> max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	4.2	≤ 250	1.6	1.6	2.6	2.3
		016	16	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40 <sup>6)</sup>	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 <sup>6)</sup>	0.7	2.5	≤ 250	1.2	0.9	2.0	1.5

<sup>1)</sup> Stranding values are in brackets.

<sup>2)</sup> See dedicated wire gauge crimping instructions document for further information.

<sup>3)</sup> 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.

<sup>4)</sup> 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.

<sup>5)</sup> 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.

<sup>6)</sup> Not valid for UP50.

<sup>7)</sup> UR0x: standard polarity only.

SIZE 13

Size	Pin layout	Layout reference	Number of contacts	Contact diameter [mm]	Wire size <sup>3)</sup>		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					Solder contacts <sup>1)</sup>	Crimp contacts <sup>2)</sup>	Pin Ø	Ground pin Ø			IEC 60512-4-1 Test 4a			
									IEC 60512-5-2-5b <sup>4)</sup>	IEC 60664-1 <sup>5)</sup>	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
13		203 <sup>9)</sup>	2 <sup>8)</sup>	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			
		303	3 <sup>8)</sup>	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			
		027	27	0.5	<sup>6)</sup> max ø0.43 mm AWG26 [1] AWG28 [19/40]	<sup>7)</sup> max ø0.43 mm min ø0.20 mm AWG28-32	0.40 <sup>6)</sup>	0.7	2.0	≤ 200	1.2	0.5	1.8	0.5

<sup>1)</sup> Stranding values are in brackets.

<sup>2)</sup> See dedicated wire gauge crimping instructions document for further information.

<sup>3)</sup> 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.

<sup>4)</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 A-12 for details.

<sup>5)</sup> 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.

<sup>6)</sup> UR0x: standard polarity only.

<sup>7)</sup> Only valid for UP01.

<sup>8)</sup> Contact block with male contacts comes standard with advanced power contacts.

<sup>9)</sup> 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 <sup>2)</sup>		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					Solder contacts <sup>1)</sup>	Crimp contacts <sup>2)</sup>	Pin Ø	Ground pin Ø			IEC 60512-4-1 Test 4a			
									AC r.m.s.		DC			
									Contact to body	Contact to contact	Contact to body	Contact to contact		
15		002 <sup>9)</sup>	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 <sup>9)</sup>	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 <sup>8)</sup>	4 <sup>5)</sup>	1.3	max Ø1.18 mm AWG17 [1] AWG18 [16/30]	-	-	-	-	≤ 320				
			2 <sup>5)</sup>	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 <sup>6)</sup>	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	

<sup>1)</sup> Stranding values are in brackets.

<sup>2)</sup> 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.

<sup>3)</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 A-12 for details.

<sup>4)</sup> 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.

<sup>5)</sup> Standard polarity only.

<sup>6)</sup> Contacts dia. 1.6 are positioned to make contact first and break last.


<sup>7)</sup> Please refer to [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical) for technical specification of coax insert.

<sup>8)</sup> Max 500 mating cycles due to coax insert characteristics.

<sup>9)</sup> 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 <sup>3)</sup>		PCB contacts [mm]		Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
					Solder contacts <sup>1)</sup>	Crimp contacts <sup>2)</sup>	Pin Ø	Ground pin Ø			IEC 60512-4-1 Test 4a			
									AC r.m.s.		DC			
									Contact to body	Contact to contact	Contact to body	Contact to contact		
18		042	42 <sup>6)</sup>	0.7	-	max Ø0.62 mm min Ø0.38 mm AWG24-28	0.50	0.70	IEC 60512-5-2-5b <sup>4)</sup>	IEC 60664-1 <sup>5)</sup>	1.5	1.5	2.4	2.5

<sup>1)</sup> Stranding values are in brackets.

<sup>2)</sup> See dedicated wire gauge crimping instructions document for further information.

<sup>3)</sup> 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.













<sup>4)</sup> 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.













<sup>5)</sup> 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.

<sup>6)</sup> 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	●	▼	■	×	

## POLARITY

### BODY STYLES

#### UP01

#### UP50



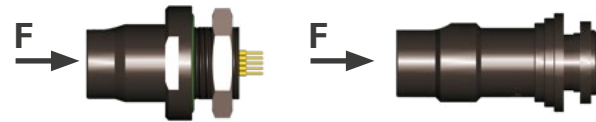
#### UR01

#### UR02



#### UR03

#### UR50



### 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).

## PCB / PIN LAYOUT

### View from F<sup>1)</sup>

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								

<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<sup>a)</sup> For optional ground pin.

PCB / PIN LAYOUT

View from F<sup>1)</sup>

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

<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<sup>a)</sup> For optional ground pin.

PCB / PIN LAYOUT

View from F<sup>1)</sup>

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

<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<sup>a)</sup> For optional ground pin.

PCB / PIN LAYOUT

View from F<sup>1)</sup>

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

<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<sup>a)</sup> For optional ground pin.

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

PCB / PIN LAYOUT

View from F<sup>1) 2)</sup>

Size	Polarity	Number of contacts (layout reference)				
		2 (002)	4 (004)	8 (008)	4+12 (412)	27 (027)
15	Standard					
	Inverted					

<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<sup>2)</sup> N/A for pin layout 204H.

<sup>a)</sup> For optional ground pin.



PCB / PIN LAYOUT

View from F<sup>1)</sup>

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

<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<sup>a)</sup> For optional ground pin.

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

# PLUGS & RECEPTACLES

Example:

Connector Design				Contact Block			Housing		Standard options			
UP01		L	07	M	010	S	BK	1	Z	2	Z	B
UR01	W		11	F	012	S	BK	2	E	1	A	A

**Body style**

**UltiMate Plug = UP**

- UP01 = Cable mounted
- UP50 = Panel mounted

**UltiMate Receptacle = UR**

- UR01 = Panel rear mounted low profile
- UR02 = Panel rear mounted
- UR03 = Panel front mounted low profile
- UR50 = Cable mounted

**Sealing level**

Panel mounted:

- V = Vacuum sealing <sup>1)</sup>
- W (IP68/69) = Water sealing
- N = Non sealing <sup>2)</sup>

Cable mounted:

- Not applicable = Nothing

**Locking system**

Cable mounted plug:

- L = Push-pull locking
- Q = Quick release

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

<b>Housing Material</b>	<ul style="list-style-type: none"> <li>■ A = ALUMINUM</li> <li>■ B = BRASS (Standard)</li> </ul>
<b>Grounding</b>	<p><b>Panel mounted:</b></p> <ul style="list-style-type: none"> <li>■ A = Grounding pin (for UR01/UR02)</li> <li>■ N = None (for UR03/UP50)</li> </ul> <p><b>Cable mounted:</b></p> <ul style="list-style-type: none"> <li>■ Z = Not applicable</li> </ul>
<b>Insulator Material</b>	<ul style="list-style-type: none"> <li>■ 1 = PBT. Size 08/11/13/18</li> <li>■ 2 = PEEK. Size 07/15</li> </ul>
<b>O-ring material</b>	<p><b>Receptacle:</b></p> <ul style="list-style-type: none"> <li>■ E = FVMQ (Fluorosilicone)</li> </ul> <p><b>Plug:</b></p> <ul style="list-style-type: none"> <li>■ Z = Not applicable</li> </ul>
<b>Keying code</b>	<ul style="list-style-type: none"> <li>■ Code 1 = ●</li> <li>■ Code 2 = ▼</li> <li>■ Code 3 = ■</li> <li>■ Code 4 = ✕</li> </ul> <p>Standard keying = Code 1 Standard guide mark = White</p>
<b>Housing color</b>	<ul style="list-style-type: none"> <li>■ BK = Standard (Anthracite)</li> </ul>
<b>Contact Type</b>	<ul style="list-style-type: none"> <li>■ S = Solder</li> <li>■ P = PCB</li> <li>■ C = Crimp <sup>4)</sup></li> <li>■ H = Hybrid</li> </ul>
<b>Layout references</b>	<ul style="list-style-type: none"> <li>■ Size 07: 002, 0S2, 003, 004, 005, 007, 009, 010</li> <li>■ Size 08: 002, 003, 004, 005, 007, 009</li> <li>■ Size 11: 008, 012, 016, 019</li> <li>■ Size 13: 203, 303, 027</li> <li>■ Size 15: 002, 004, 204 <sup>3)</sup>, 008, 412, 027</li> <li>■ Size 18: 042</li> </ul>
<b>Polarity of contacts</b>	<ul style="list-style-type: none"> <li>■ M = Male contacts</li> <li>■ F = Female contacts</li> </ul> <p>Standard polarity: Male contacts in plug, female contacts in receptacle</p>

<sup>1)</sup> UR0x: only available in "V" version for layout references size 13: 203 and size 15: 002, 004 (no "W" nor "N" versions).

<sup>2)</sup> Only option for pin layout 204H.

<sup>3)</sup> Coax contacts must be ordered separately. Please refer to [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical) for Coax inserts details.

<sup>4)</sup> 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



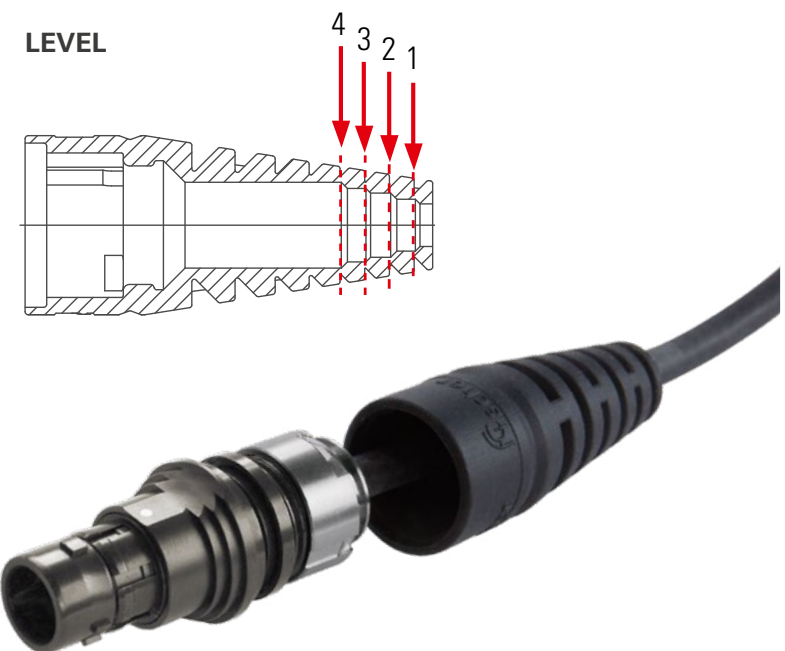
Standard color is black (BK)

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



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

## SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 1

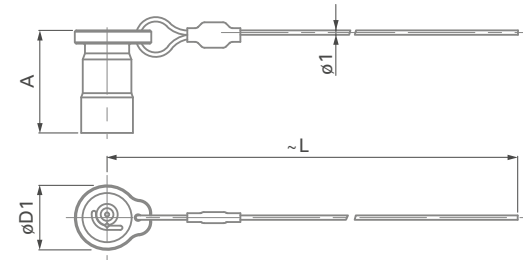
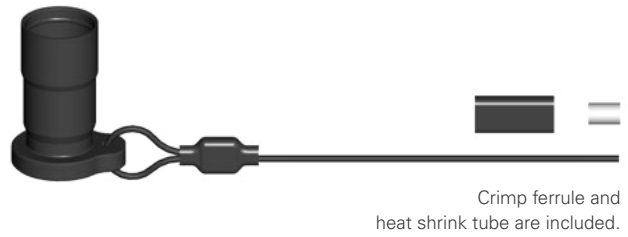


FIGURE 2

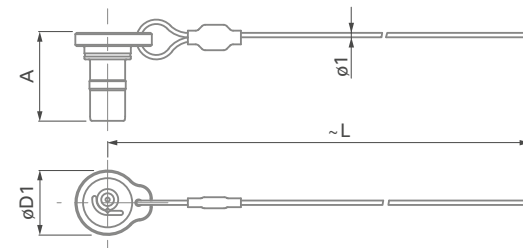
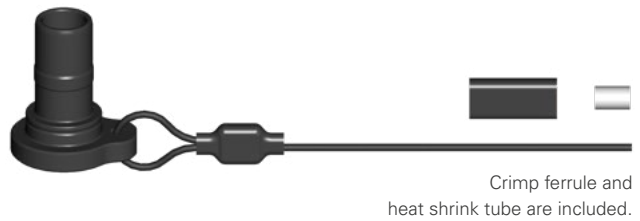
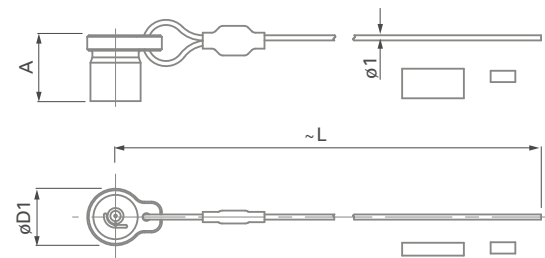
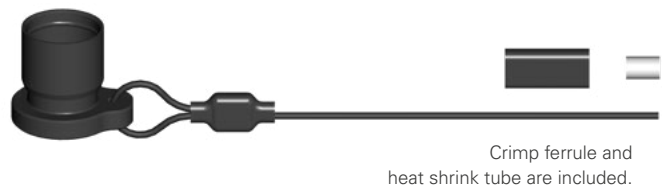
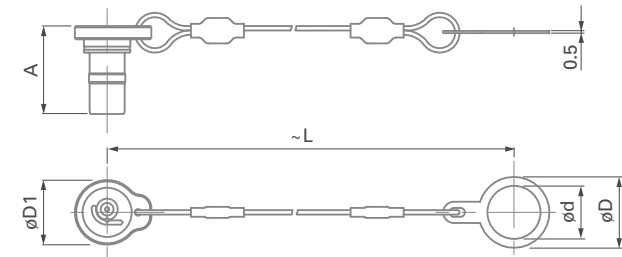


FIGURE 3



**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	20.7	200	-	-	UCP15C 1A1 A200	1
			●	●			22.5	20.5	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.

**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°.

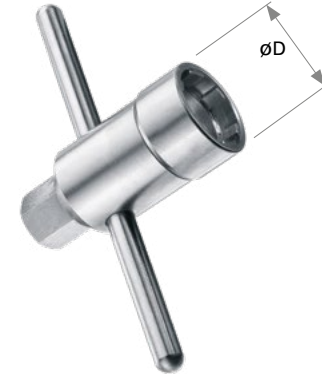
**OPEN SPANNER  
EXTRA THIN** 



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.

## MATERIAL & SURFACE FINISH

Components	Material		Finish	
	Designation ISO	Standard	Designation	Standard
Spring sleeve (plug), shell (plug), Mounting nut (receptacle) <sup>1)</sup> , 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) <sup>2)</sup>	Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Brass CuZn39Pb3	CW614N UNS C 38500		
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	- Molded	PBT, PEEK <sup>3)</sup>	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

Soft caps		Material	Flammability
Cap		TPV (Santoprene™)	UL 94 HB
Cord		Polyester	-
Fixing lug		Black Chrome plated brass (ISO CuZn37)	-
Crimp ferrule		Nickel plated copper	-

O-rings	International symbol	Chemical name
General	FPM (Viton®)	Fluoro elastomer
Interface	FVMQ	Fluorosilicone rubber

<sup>1)</sup> For UR01 & UR02.

<sup>2)</sup> For UR03 & UP50.

<sup>3)</sup> PBT for size 08, 11, 13 and 18. PEEK for size 07 and 15.

## ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
<b>Sealing performance mated and unmated</b> <sup>4)</sup>	IP68/IP69 2 m submersion for 24 h <sup>1)</sup>	IEC 60529
	"V" sealing level: Hermetic: Tested: <10 <sup>-9</sup> mbar l/s	IEC 60068-2-17 Test Qk, Method 3
<b>Sealing performance soft caps</b>	IP68, 2 m submersion for 24 hours; IP69;	IEC 60529
<b>Operating temperature range</b>	-55 °C to +135 °C <sup>2)</sup>	IEC 60068-2-14-Nb
<b>Corrosion resistance</b> <sup>3)</sup>	Salt mist, 1,000 hours, 5% salt solution, 35 °C;	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101 ; EIA-364-26
<b>Endurance</b>	10,000 mating cycles <sup>5)</sup>	IEC 60512-9-1; EIA-364-09
<b>Vibration, random (Size 08, 11, 13, 15, 18)</b>	37.80 Grms	MIL-STD-202 Method 214A Condition I; EIA-364-28 Condition V
<b>Vibration (Size 07)</b>	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
<b>Shock</b>	300g amplitude, half sine pulse of 3 ms, no discontinuity > 1 μs	MIL-STD-202 Method 213; EIA-364-27

<sup>1)</sup> 120 m/24 h or other depth/duration requirements available on request, please contact your local sales office.

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

<sup>3)</sup> 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.

<sup>4)</sup> Sealing performance of pin layout 204H valid only in mated condition due to coax insert.

<sup>5)</sup> 500 mating cycles for pin layout 204H due to coax insert.

## ELECTRICAL DATA <sup>8)</sup>

Characteristic	Contact size	Typical values	Standard
<b>Contact resistance over 10,000 mating cycles</b>	∅0.5 mm	5.0 mΩ	IEC 60512-2-1-2a IEC 60512-2-2-2b
	∅0.7 mm	5.0 mΩ	
	∅0.9 mm	4.0 mΩ	
	∅1.6 mm	2.5 mΩ	
	∅2.3 mm	2.5 mΩ	
<b>Shell resistance</b> <sup>6)</sup>		< 5.0 mΩ	IEC 60512-2-6-2f
<b>Insulation resistance</b>		> 10 <sup>10</sup> Ω	IEC 60512-3-1-3a Method C
<b>Shielding effectiveness</b> <sup>7)</sup>		> 54 dB	up to 1 GHz, IEC 60512-23-3

<sup>6)</sup> Measurement points on Figure 1.

<sup>7)</sup> Size 08 connector pair.

<sup>8)</sup> Please refer to [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical) for technical specification of coax insert.

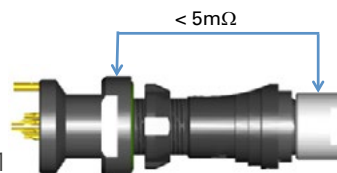


FIGURE 1

## DATA TRANSMISSION

Protocol	Number of contacts required	
<b>USB 2.0</b>	4	yes
<b>USB 3.0</b>	9	application dependent <sup>9)</sup>
<b>Ethernet Cat 5e (1 Gbit/s)</b>	8	yes
<b>Standard audio/video protocol (10.2 Gbit/s)</b>	19	yes

The data transmission performance of the Fischer UltiMate™ Series has been tested for most popular protocols that are used in a variety of applications today.

<sup>9)</sup> Test with your application to confirm acceptable functionality



# ULTIMATE 80

## PLUGS



### PRE-CABLED SOLUTION

- Body styles (UP81)..... H-34
- Technical dimensions ..... H-35



### CONNECTOR

- Body styles (UP81)..... H-34
- Technical dimensions ..... H-35

## RECEPTACLES



### PRE-CABLED SOLUTION

- Body styles (UR80)..... H-36
- Technical dimensions ..... H-37



### PANEL REAR MOUNTED

- Body styles (UR81)..... H-36
- Technical dimensions ..... H-38



### CONNECTOR

- Body styles (UR80)..... H-36
- Technical dimensions ..... H-37



## FOR ULTIMATE 80

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- Tooling ..... H-43
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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.

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

PLUGS

		PRE-CABLED	CONNECTOR	
				
Body style		UP81		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-39
Housing material	Aluminum	●	●	Part numbering, page H-40
Housing color	Black <sup>1)</sup>	●	●	Part numbering, page H-40
Design	Straight	●		Body styles, page H-40
	Right-angle			
Cabling	Overmolded	●		
Accessories	Sealing caps	●	●	Accessories, page H-43
Size	08	●	●	Technical dimensions, page H-35

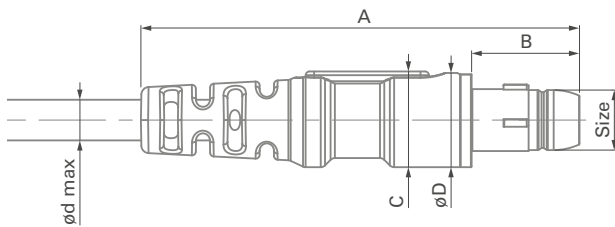
<sup>1)</sup> Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

PLUGS

PRE-CABLED

UP81

BODY STYLE

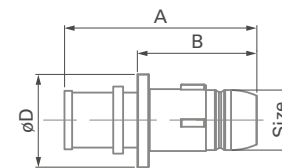


Size	A	B	C	øD	ød max
08	58.0	14.2	12.6	12.4	5.5

CONNECTOR




UP81

BODY STYLE



Size	A	B	øD
08	25.2	15.7	12.4

## 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-39
	Solder contact		●		
	PCB contact		●		
Housing material	Aluminum	●	●	●	Part numbering, page H-40
Housing color	Black <sup>2)</sup>	●	●	●	Part numbering, page H-40
Design	Straight	●	●		Body styles, page H-33
	Right-angle				
	Flush		●		
Assembly	Rear-mounting		●		
Cabling	Overmolded	●			
Accessories	Sealing caps	●	●	●	Accessories, page H-43
Size	08	●	●	●	Technical dimensions, page H-37

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

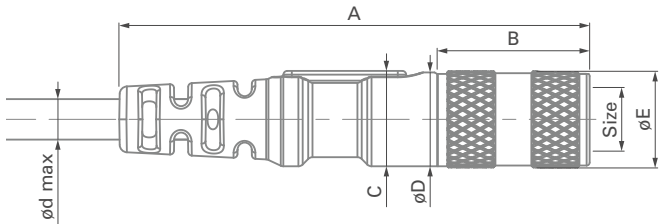
<sup>2)</sup> Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

## RECEPTACLES

### PRE-CABLED SOLUTION

#### UR80

BODY STYLE

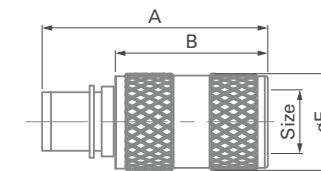


Size	A	B	C	øD	øE	ød max
08	62.2	20.2	12.6	12.4	12.8	5.5

### CONNECTORS

#### UR80

BODY STYLE



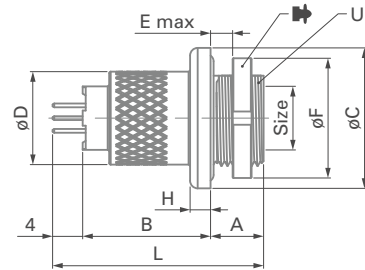
Size	A	B	øE
08	29.6	20.2	12.8

RECEPTACLES

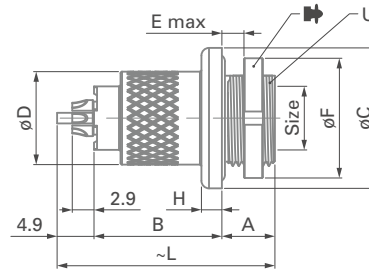
PANEL REAR MOUNTED

UR81

BODY STYLE



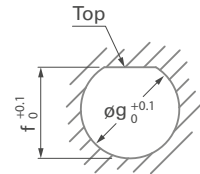
PCB



SOLDER

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

## ELECTRICAL & CONTACT CONFIGURATIONS

Size	Pin layout	Layout reference	Number of contacts	Contact diameter [mm]	Wire size <sup>3)</sup>		PCB contacts	Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position						
					Solder contacts <sup>2)</sup>	Crimp contacts				Pin diameter [mm]	IEC 60512-5-2-5b <sup>4)</sup>	IEC 60664-1 <sup>5)</sup>	IEC 60512-4-1 Test 4a		DC	
													AC r.m.s.		DC	
													Contact to body	Contact to contact	Contact to body	Contact to contact
08		006 /105 <sup>1)</sup>	6	0.7	max $\phi$ 1.02 mm AWG19 [1] AWG20 [26/34]	max $\phi$ 0.85 mm min $\phi$ 0.48 mm AWG22-28	0.5	2x 9 <sup>6)</sup> 2x 2 2x 0.02	$\leq$ 200	0.8	1.3	1.5	2.3			
		007 /106 <sup>1)</sup>	7	0.7	max $\phi$ 1.02 mm AWG19 [1] AWG20 [26/34]	max $\phi$ 0.85 mm min $\phi$ 0.48 mm AWG22-28	0.5	2x 9 <sup>6)</sup> 3x 2 2x 0.02	$\leq$ 200	0.8	1.3	1.5	2.3			

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

<sup>2)</sup> Solder contacts option only for UR81 in replacement of the standard PCB contacts.

<sup>3)</sup> 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.

<sup>4)</sup> 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.

<sup>5)</sup> 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.

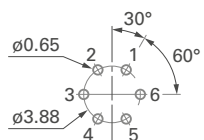
<sup>6)</sup> Alternatively, only 2 contacts loaded : 2x 10 A

## PCB / PIN LAYOUT

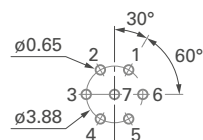
### View from the front of the receptacle <sup>7)</sup>

#### Number of contacts (layout reference)

LAYOUT 006 (105)



LAYOUT 007 (106)



<sup>7)</sup> Recommended PCB hole dimensions may be adjusted to application.

## MECHANICAL CODING <sup>8)</sup>

	Code Y	Code Y
PLUGS		
RECEPTACLES		

<sup>8)</sup> View from front of connectors. For further details see part numbering.

PLUGS & RECEPTACLES

Example:

Connector Design				Contact Block			Housing		Standard options			
UP81		Q	08	M	105	C	BB	Y	Z	2	Z	A
UR81	W		08	F	007	P	BB	Y	S	2	N	A

Body style

UltiMate Plug = UP

- UP81 = Cable mounted

UltiMate Receptacle = UR

- UR80 = Cable mounted
- UR81 = Panel rear mounted

Sealing level

Panel mounted:

- W (IP68) = Water sealing

Cable mounted receptacle:

- Z = Not applicable

Cable mounted plug:

- Nothing

Locking system

Cable mounted plug:

- Q = Quick release

Cable mounted receptacle:

- Quick release = Nothing

Panel mounted:

- Quick release = Nothing

Connector size

- 08 = Size 08

Housing Material

- A = ALUMINUM

Grounding

Panel mounted:

- N = None (UR81)

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

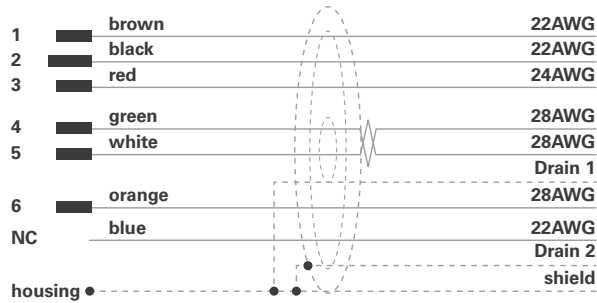
- F = Female contacts



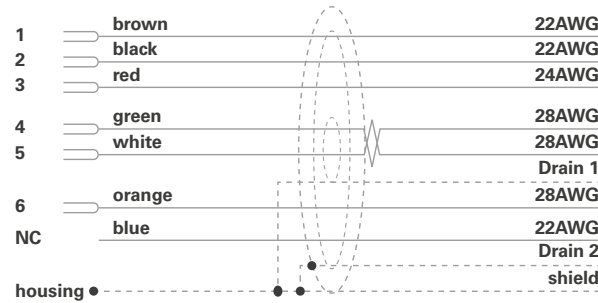
## CABLE SPECIFICATION FOR PRE-CABLED 6 CONTACTS

- 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

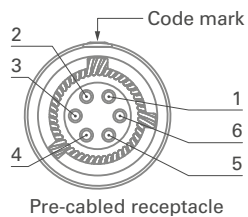
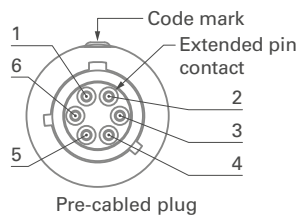
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

### 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

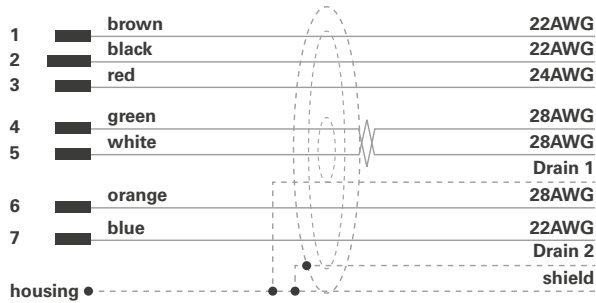
REMARK: Pin No. can be assigned according to NATO AEP-4851 & NATO AEP-4695.

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

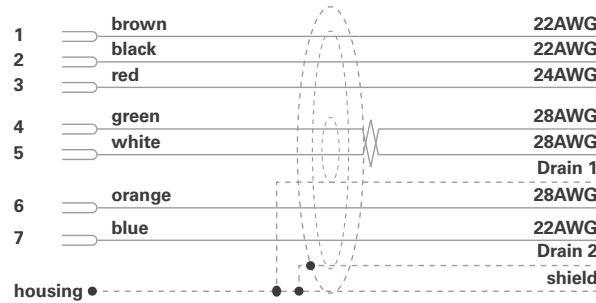
## CABLE SPECIFICATION FOR PRE-CABLED 7 CONTACTS

- 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

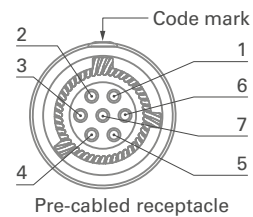
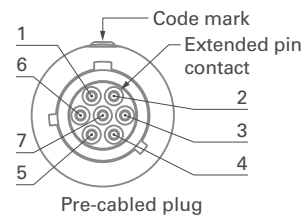
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

### 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

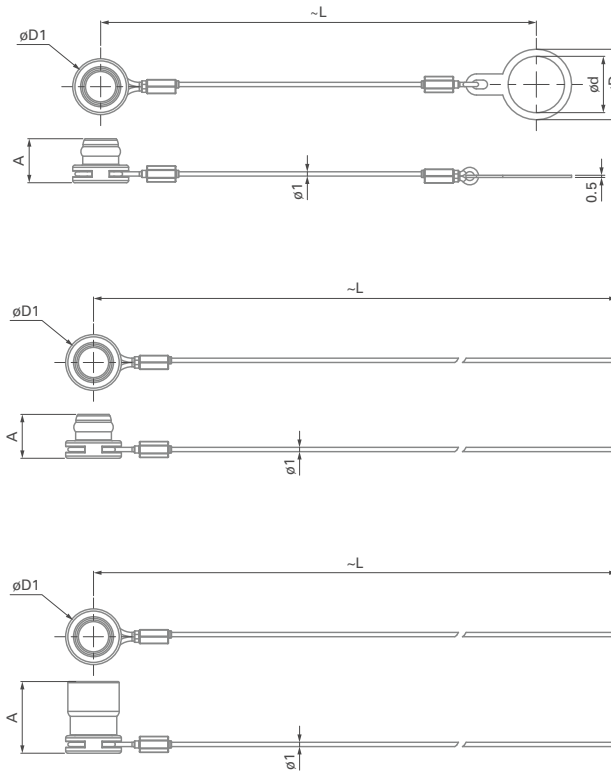
View from front



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	

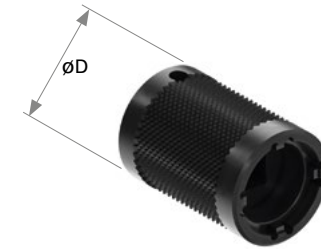
WIRE	PRE-CABLED RECEPTACLE SOLUTION	
	1 m, open end	
	Pin number	
AWG22 brown	1	
AWG22 black	2	
AWG24 red	3	
AWG28 green	4	
AWG28 white	5	
AWG28 orange	6	
AWG22 blue	7	
Part number	140602 CA S 07 UR80Z08BBYA/OE PUR TN 1.0M	
	140611 CA S 07 UR80Z08BBYA/OE PUR BK 1.0M	

SOFT CAPS - LANYARD WITH STAINLESS STEEL CABLE



NUT DRIVER (FOR UR81)

NUT DRIVER WITH SQUARE SOCKET\*



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

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

Material – PA

Size	Plug	Receptacle		A	øD1	L	ød	øD	Part number
	UP81	UR80 <sup>1)</sup>	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	200	-	-	UCP80C 1B2 A200 AA

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

<sup>1)</sup> Corrosion resistance dependent on body style. 400h for UR81 (panel rear mounted receptacle).

<sup>2)</sup> Cosmetic changes may appear over time without impacting mechanical or electrical functions.

<sup>3)</sup> Preserved mechanical and electrical functionality. Normal wear could appear.

## ELECTRICAL DATA

Characteristic	Performance	Standard
<b>Contact resistance (typical value)</b>	< 10 mΩ (typical value)	MIL-STD-202 Method 307
<b>Shell resistance (typical value)</b>	< 10 mΩ (cabled; new condition)	MIL-STD-202 Method 307
<b>Insulation resistance</b>	> 10 <sup>10</sup> Ω	MIL-STD-883 Method 1003 MIL-STD-202 Method 302
<b>Shielding effectiveness</b>	360° shielded. The equipment under test, with two different Fischer Connectors systems that use both UltiMate 80 plug and receptacle, is compliant according to limits of MIL-Standard.	MIL-STD-461G (CE101, CE102, CS101, RE101, RE102, RS101, RS102)

## 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 CuZn39Pb3	CW614N UNS C 38500	-	-
Contacts	- Male or Female (Crimp) - 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 <sup>1)</sup>	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 <sup>®</sup> )	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	Black Chrome plated brass (ISO CuZn37)	-
Crimp ferrule	Aluminum	-
Heat shrink tube	Polyolefin	-

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