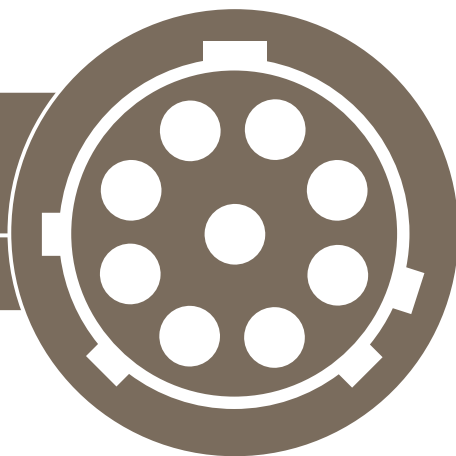


# H

## CHAPTER



# FISCHER ULTIMATE™ SERIES

RUGGED | COMPACT | LIGHTWEIGHT

## KEY FEATURES

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

- ULTIMATE table of contents ..... H-2
- ULTIMATE USB-C table of contents ..... H-35
- ULTIMATE 80 table of contents ..... H-49



# H-2 / H-32

# ULTIMATE



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

## AVAILABLE SIZES

CONNECTOR SIZE  
VERSUS  
CABLE DIAMETER

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

Min cable ø compatible with bend relief (accessory).

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

## PLUGS

### CABLE MOUNTED



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

# Technical dimensions

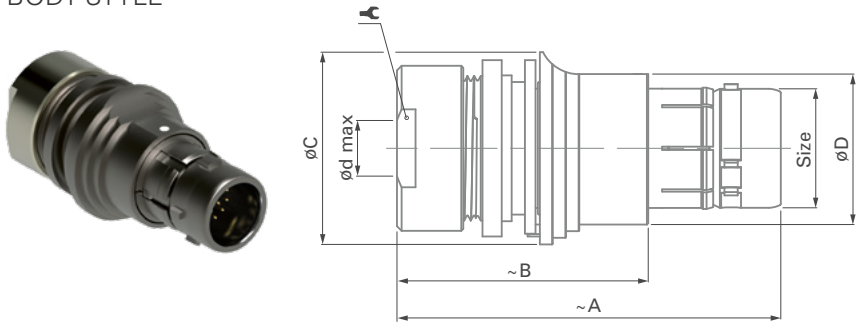
FISCHER **ULTIMATE™** SERIES

## PLUGS

### CABLE MOUNTED

#### UP01

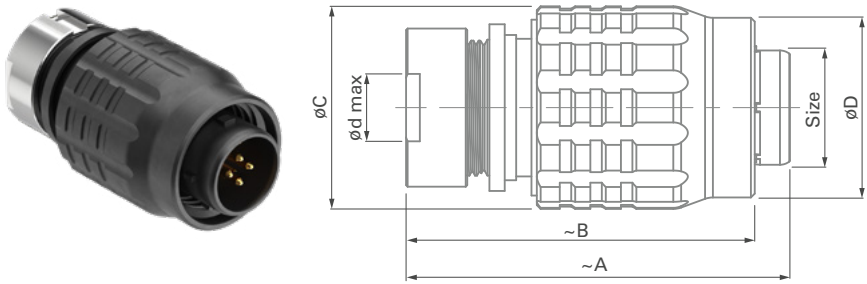
BODY STYLE



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

#### UP02

BODY STYLE



| Size                                        | A    | B    | øC   | øD   | ød max |  | Torque |
|---------------------------------------------|------|------|------|------|--------|-------------------------------------------------------------------------------------|--------|
| 15<br>RLS<br>(Ratchet<br>Locking<br>System) | 50.0 | 45.5 | 26.5 | 23.5 | 11.3   | 19                                                                                  | 4.0 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                                                                                                                                             |
| 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<br>For more information visit our website <a href="http://www.fischerconnectors.com/technical">www.fischerconnectors.com/technical</a> |
|                  | 11                 | ●    |                                                                                                                                                                       |

# Technical dimensions

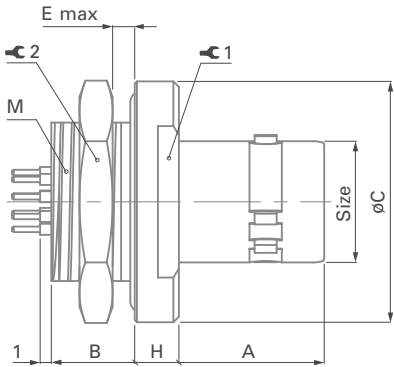
FISCHER **ULTIMATE™** SERIES

## PLUGS

### PANEL FRONT MOUNTED

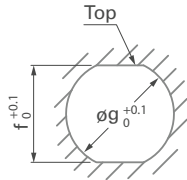
#### UP50

BODY STYLE



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

| Size | f    | Øg   |
|------|------|------|
| 07   | 8.0  | 9.1  |
| 11   | 14.5 | 16.1 |



PANEL CUT-OUT

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

## RECEPTACLES

### CABLE MOUNTED



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

# Technical dimensions

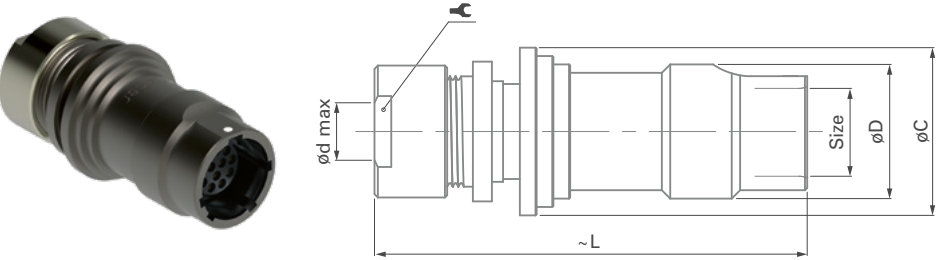
FISCHER **ULTIMATE™** SERIES

## RECEPTACLES

### CABLE MOUNTED

#### UR50

BODY STYLE



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

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

## RECEPTACLES

### PANEL MOUNTED



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

Technical dimensions, page H-11 and H-12

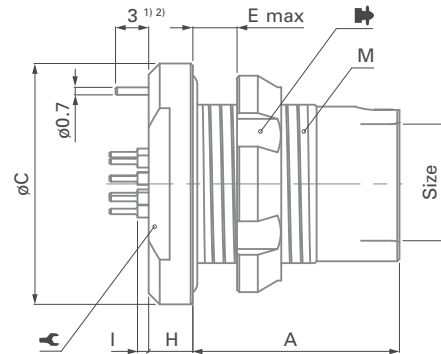
For more information visit our website  
[www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical)

## RECEPTACLES

### PANEL REAR MOUNTED\*

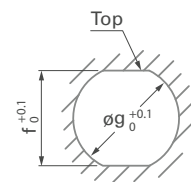
#### UR01

##### 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 |

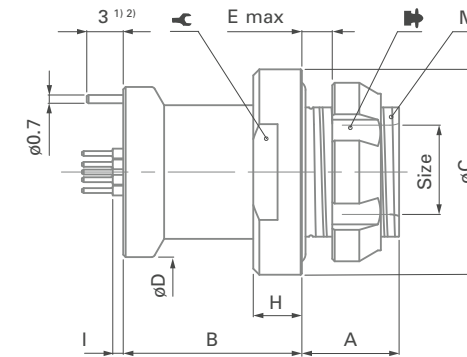
| Size | f    | øg   |
|------|------|------|
| 07   | 9.2  | 10.1 |
| 08   | 10.9 | 12.1 |
| 11   | 14.5 | 16.1 |
| 13   | 16.5 | 18.1 |
| 15   | 18.5 | 20.1 |
| 18   | 23.2 | 25.1 |



PANEL CUT-OUT

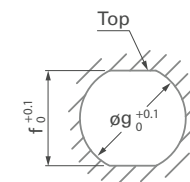
#### UR02

##### 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

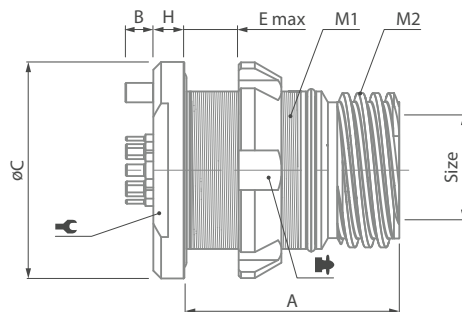
All dimensions and images shown are in millimeters and are for reference only.

## RECEPTACLES

### PANEL REAR MOUNTED

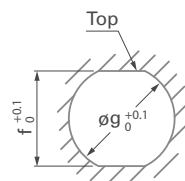
#### UR04

##### BODY STYLE



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

| Size | f    | øg   |
|------|------|------|
| 15   | 20.5 | 22.1 |

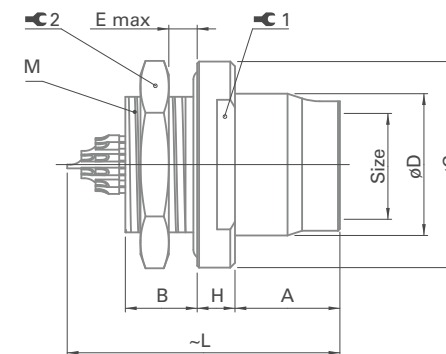


PANEL CUT-OUT

### PANEL FRONT MOUNTED\*

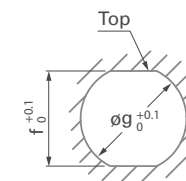
#### UR03

##### BODY STYLE



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

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



PANEL CUT-OUT

\* Standard version with solder contacts.

## SIZE 07

| Size | Pin layout                                                                          | Layout reference | Number of contacts | Contact diameter <sup>[mm]</sup> | Wire size <sup>3)</sup>                                 |                                                        | PCB contacts <sup>[mm]</sup> |              | Current rating <sup>[A]</sup> | Rated voltage r.m.s <sup>[V]</sup> | Test voltage <sup>[kV]</sup> in mated position |                           |                 |                    |                 |                    |
|------|-------------------------------------------------------------------------------------|------------------|--------------------|----------------------------------|---------------------------------------------------------|--------------------------------------------------------|------------------------------|--------------|-------------------------------|------------------------------------|------------------------------------------------|---------------------------|-----------------|--------------------|-----------------|--------------------|
|      |                                                                                     |                  |                    |                                  |                                                         |                                                        |                              |              |                               |                                    | IEC 60512-4-1 Test 4a                          |                           |                 |                    |                 |                    |
|      |                                                                                     |                  |                    |                                  | 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<br>AWG21 [1]<br>AWG22 [7/30]               | max ø0.83 mm <sup>6)</sup><br>min ø0.48 mm<br>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><br>AWG21 [1]<br>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<br>AWG21 [1]<br>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<br>AWG21 [1]<br>AWG22 [7/30]               | max ø0.62 mm<br>min ø0.38 mm<br>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<br>AWG21 [1]<br>AWG22 [7/30]               | max ø0.62 mm<br>min ø0.38 mm<br>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<br>AWG26 [1]<br>AWG28 [19/40]              | max ø0.43 mm<br>min ø0.20 mm<br>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<br>AWG26 [1]<br>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<br>AWG26 [1]<br>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 <i>[mm]</i> | Wire size <sup>3)</sup>                    |                                          | PCB contacts <i>[mm]</i> |              | Current rating <i>[A]</i>      | Rated voltage r.m.s <i>[V]</i> | Test voltage <i>[kV]</i> in mated position |                    |                 |                    |
|------|-------------------------------------------------------------------------------------|------------------|--------------------|------------------------------|--------------------------------------------|------------------------------------------|--------------------------|--------------|--------------------------------|--------------------------------|--------------------------------------------|--------------------|-----------------|--------------------|
|      |                                                                                     |                  |                    |                              |                                            |                                          | IEC 60512-4-1 Test 4a    |              |                                |                                |                                            |                    |                 |                    |
|      |                                                                                     |                  |                    |                              | Solder contacts <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 |
| 08   |    | 002              | 2                  | 0.9                          | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]  | -                                        | 0.70                     | 0.7          | 9.2                            | ≤ 250                          | 1.3                                        | 1.7                | 1.8             | 2.4                |
|      |    | 003              | 3                  | 0.9                          | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]  | -                                        | 0.70                     | 0.7          | 8.2                            | ≤ 250                          | 1.3                                        | 1.3                | 1.8             | 1.6                |
|      |    | 004              | 4                  | 0.7                          | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]  | max Ø0.62 mm<br>min Ø0.38 mm<br>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<br>AWG21 [1]<br>AWG22 [7/30]  | max Ø0.62 mm<br>min Ø0.38 mm<br>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<br>AWG26 [1]<br>AWG28 [19/40] | -                                        | 0.40                     | 0.7          | 4.0                            | ≤ 160                          | 0.8                                        | 1.0                | 1.3             | 1.8                |
|      |  | 009              | 9                  | 0.5                          | max Ø0.43 mm<br>AWG26 [1]<br>AWG28 [19/40] | -                                        | 0.40                     | 0.7          | 3.1                            | ≤ 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 <i>[mm]</i> | Wire size <sup>3)</sup>                    |                                           | PCB contacts <i>[mm]</i>                                     |              | Current rating <i>[A]</i>      | Rated voltage r.m.s <i>[V]</i> | Test voltage <i>[kV]</i> in mated position |                    |                 |                    |
|------|----------------------------------------------------------------------------------------------|------------------|--------------------|------------------------------|--------------------------------------------|-------------------------------------------|--------------------------------------------------------------|--------------|--------------------------------|--------------------------------|--------------------------------------------|--------------------|-----------------|--------------------|
|      |                                                                                              |                  |                    |                              |                                            |                                           | IEC 60512-4-1 Test 4a                                        |              |                                |                                |                                            |                    |                 |                    |
|      |                                                                                              |                  |                    |                              | Solder contacts <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 |
| 11   |             | 008              | 8                  | 0.7                          | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]  | max Ø0.62 mm<br>min Ø0.38 mm<br>AWG24-28  | 0.50                                                         | 0.7          | 4.2                            | ≤ 250                          | 1.7                                        | 1.8                | 3.1             | 2.6                |
|      | <br>USB 3.2 | 207              | 2                  | 0.7                          | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]  | -                                         | 0.40                                                         | 0.7          | 9.0                            | ≤ 250                          | 1.3                                        | 1.6                | 1.9             | 2.2                |
|      |                                                                                              |                  | 6                  | 0.5                          | max Ø0.43 mm<br>AWG26 [1]<br>AWG28 [19/40] | -                                         | 0.40                                                         |              | 1.0                            | ≤ 250                          | 1.2                                        | 1.2                | 1.7             | 1.8                |
|      |                                                                                              |                  | 1                  | 0.5                          | max Ø0.63 mm<br>AWG24 [1]<br>AWG26 [19/38] | -                                         | 0.40                                                         |              | 1.0                            | ≤ 250                          | 1.2                                        | 1.2                | 1.7             | 1.8                |
|      |                                                                                              |                  | 012                | 12                           | 0.7                                        | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30] | <sup>6) 7)</sup><br>max Ø0.62 mm<br>min Ø0.38 mm<br>AWG24-28 |              | 0.50                           | 0.7                            | 4.2                                        | ≤ 250              | 1.6             | 1.6                |
|      |            | 016              | 16                 | 0.5                          | max Ø0.43 mm<br>AWG26 [1]<br>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<br>AWG26 [1]<br>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.

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

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

# SIZE 13

| Size | Pin layout                                                                        | Layout reference  | Number of contacts | Contact diameter <sup>[mm]</sup> | Wire size <sup>3)</sup>                                     |                                                           | PCB contacts <sup>[mm]</sup> |              | Current rating <sup>[A]</sup>  | Rated voltage r.m.s <sup>[V]</sup> | Test voltage <sup>[kV]</sup> in mated position |                    |                 |                    |
|------|-----------------------------------------------------------------------------------|-------------------|--------------------|----------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|------------------------------|--------------|--------------------------------|------------------------------------|------------------------------------------------|--------------------|-----------------|--------------------|
|      |                                                                                   |                   |                    |                                  |                                                             |                                                           |                              |              |                                |                                    | IEC 60512-4-1 Test 4a                          |                    |                 |                    |
|      |                                                                                   |                   |                    |                                  | 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 |
| 13   |  | 203 <sup>9)</sup> | 2 <sup>8)</sup>    | 2.3                              | max Ø3.28 mm<br>AWG9 [19/22]                                | -                                                         | 1.8                          | 1.8          | 26                             | ≤ 320                              | 2.2                                            | 1.7                | 3.7             | 2.4                |
|      |                                                                                   |                   | 3                  | 0.7                              | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]                   | -                                                         | 0.5                          |              | 1                              | ≤ 320                              | 2.1                                            |                    | 3.7             |                    |
|      |  | 303               | 3 <sup>8)</sup>    | 1.6                              | max Ø1.86 mm<br>AWG13 [1]<br>AWG14 [7/22]                   | -                                                         | 1.5                          | 1.5          | 16                             | ≤ 320                              | 2.6                                            | 1.6                | 3.6             | 2.4                |
|      |                                                                                   |                   | 3                  | 0.7                              | max Ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]                   | -                                                         | 0.5                          |              | 1                              | ≤ 320                              | 2.6                                            |                    | 3.6             |                    |
|      |  | 027               | 27                 | 0.5                              | <sup>6)</sup><br>max Ø0.43 mm<br>AWG26 [1]<br>AWG28 [19/40] | <sup>7)</sup><br>max Ø0.43 mm<br>min Ø0.20 mm<br>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 |                    |                 |                    |
|------|-------------------------------------------------------------------------------------|--------------------|--------------------|-----------------------|--------------------------------------------|------------------------------|-------------------|--------------|--------------------------------|---------------------------|-------------------------------------|--------------------|-----------------|--------------------|
|      |                                                                                     |                    |                    |                       |                                            |                              |                   |              |                                |                           | IEC 60512-4-1 Test 4a               |                    |                 |                    |
|      |                                                                                     |                    |                    |                       | Solder contacts <sup>1)</sup>              | Crimp contacts <sup>2)</sup> | Pin ø             | Ground pin ø | IEC 60512-5-2-5b <sup>3)</sup> | IEC 60664-1 <sup>4)</sup> | 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<br>AWG9 [1]<br>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<br>AWG13 [1]<br>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<br>AWG17 [1]<br>AWG18 [16/30] | -                            | -                 | -            | 12                             | ≤ 320                     | 1.5                                 | 2.3                | 2.8             | 3.5                |
|      |                                                                                     |                    | 2 <sup>5)</sup>    | coax                  | -                                          | 7)                           | -                 | -            | 7)                             | 7)                        | 7)                                  | -                  | 7)              | -                  |
|      |    | 008                | 8                  | 1.3                   | max ø1.18 mm<br>AWG17 [1]<br>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<br>AWG13 [1]<br>AWG14 [7/22]  | -                            | 1.5               | 2.5          | 14                             | ≤ 250                     | 1.6                                 | 1.3                | 2.8             | 2.1                |
|      |                                                                                     |                    | 12                 | 0.7                   | max ø0.79 mm<br>AWG21 [1]<br>AWG22 [7/30]  | -                            | 0.5               |              | 1.0                            |                           | 1.0                                 | 1.2                | 1.5             | 2.0                |
|      |  | 027                | 27                 | 0.7                   | max ø0.79 mm<br>AWG21 [1]<br>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 <https://fischerconnectors.com/en/download-center/> for technical specification of coax insert.

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

<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 |                    |                 |                    |
|------|-----------------------------------------------------------------------------------|------------------|--------------------|-----------------------|-------------------------------|------------------------------------------|-------------------|--------------|--------------------------------|---------------------------|-------------------------------------|--------------------|-----------------|--------------------|
|      |                                                                                   |                  |                    |                       |                               |                                          |                   |              |                                |                           | IEC 60512-4-1 Test 4a               |                    |                 |                    |
|      |                                                                                   |                  |                    |                       | 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 |
| 18   |  | 042              | 42 <sup>6)</sup>   | 0.7                   | -                             | max Ø0.62 mm<br>min Ø0.38 mm<br>AWG24-28 | 0.50              | 0.70         | 3.0                            | ≤ 250                     | 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 |      | ●                                                                                   | ▼                                                                                   | ■                                                                                   | ×                                                                                   |

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

## POLARITY

### BODY STYLES

#### UP01

#### UP50



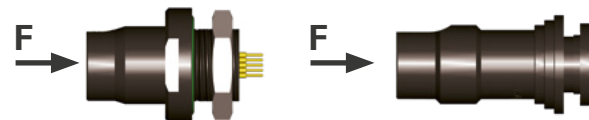
#### UR01

#### 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>

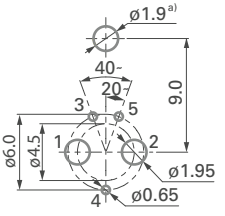
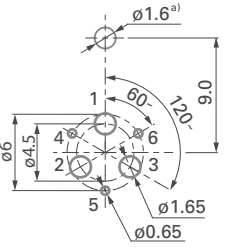
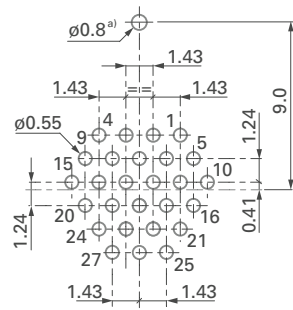
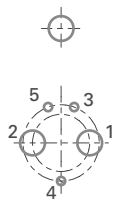
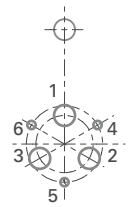
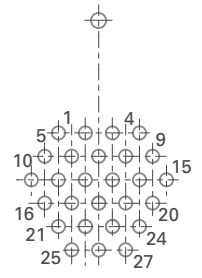
| Size | Polarity | Number of contacts (layout reference) |         |          |          |          |
|------|----------|---------------------------------------|---------|----------|----------|----------|
|      |          | 8 (008)                               | 9 (207) | 12 (012) | 16 (016) | 19 (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>

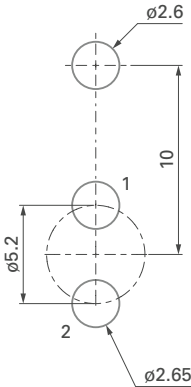
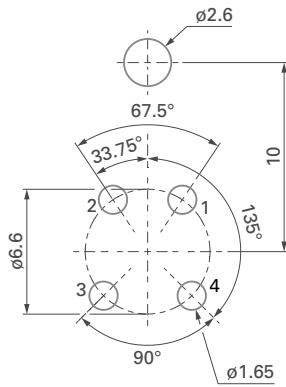
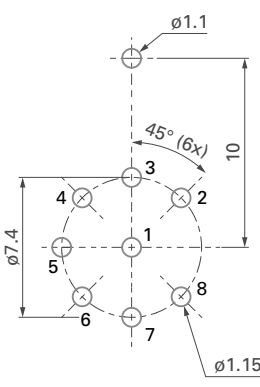
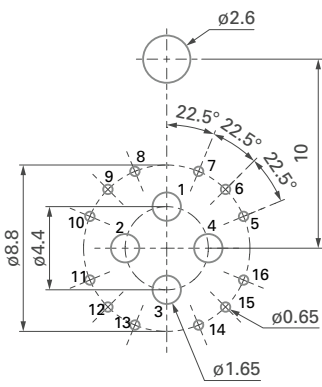
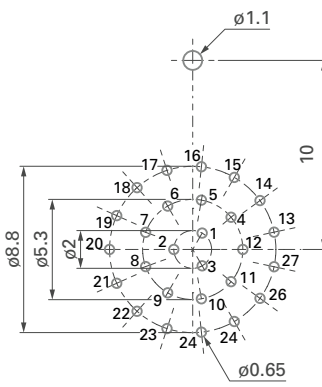
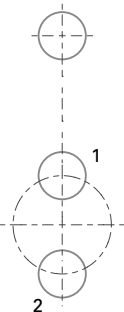
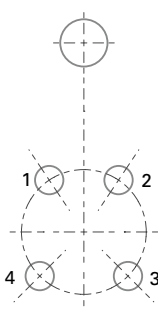
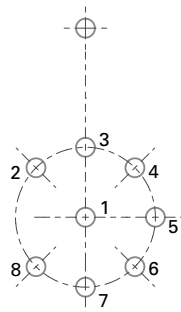
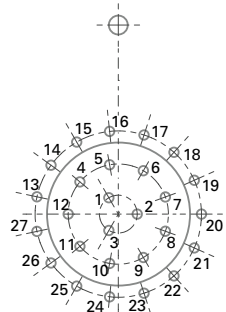
| Size | Polarity | Number of contacts (layout reference)                                               |                                                                                     |                                                                                      |
|------|----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|      |          | 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.

## 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 |  |  |  |  |  |

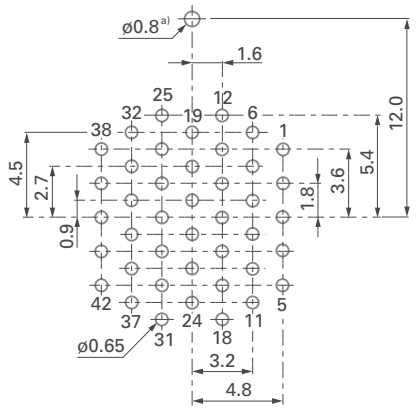
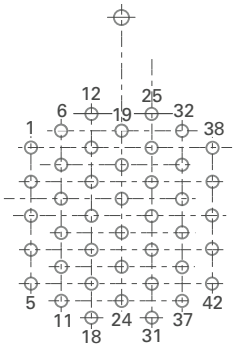
<sup>1)</sup> Recommended PCB hole dimensions may be adjusted to application.

<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.

# PLUGS & RECEPTACLES

Example:

| Connector Design |   |   |    |
|------------------|---|---|----|
| UP01             |   | L | 07 |
| UR01             | W |   | 11 |

| Contact Block |     |   |
|---------------|-----|---|
| M             | 010 | S |
| F             | 012 | S |

| Housing |   |
|---------|---|
| BK      | 1 |
| BK      | 2 |

| Standard options |   |   |   |
|------------------|---|---|---|
| Z                | 2 | Z | B |
| E                | 1 | A | A |

## Body style

### UltiMate Plug = UP

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

### UltiMate Receptacle = UR

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

## Sealing level

Panel mounted:

- **V** = Vacuum sealing <sup>1)</sup>
- **W** (IP68) = 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
- **R** = RLS (Ratchet Locking System) <sup>3)</sup>

Cable mounted receptacle:

- **Z** = Not applicable

Panel mounted:

- No locking = Nothing

## Connector size

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

## Housing Material

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

## Grounding

### Panel mounted:

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

### Cable mounted:

- **Z** = Not applicable

## Insulator Material

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

## O-ring material

### Receptacle:

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

### Plug:

- **Z** = Not applicable

## Keying code

- **Code 1** = ●
- **Code 2** = ▼
- **Standard keying** = Code 1

- **Code 3** = ■
- **Code 4** = ✕

Standard guide mark = White

## Housing color

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

## Contact Type

- **S** = Solder
- **P** = PCB
- **C** = Crimp <sup>5)</sup>
- **H** = Hybrid

## Layout references

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

## Polarity of contacts

- **M** = Male contacts
- **F** = Female contacts

**Standard polarity:** Male contacts in plug, female contacts in receptacle

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

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

<sup>3)</sup> Only with body styles UP02 and UR04.

<sup>4)</sup> Coax contacts must be ordered separately. Please refer to [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical) for Coax inserts details.

<sup>5)</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

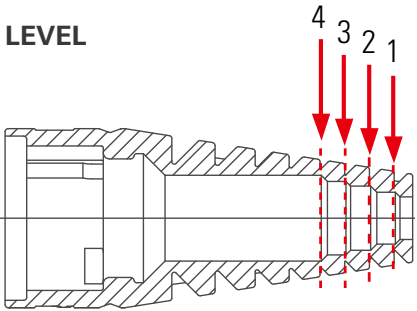


Standard color is black (BK)  
Also available in grey (GY), blue (BL), yellow (YL), green (GN), violet (VT) upon request.

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   |



## SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 1

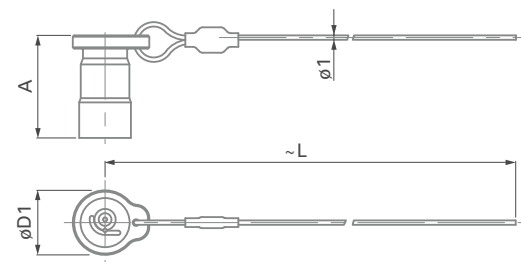
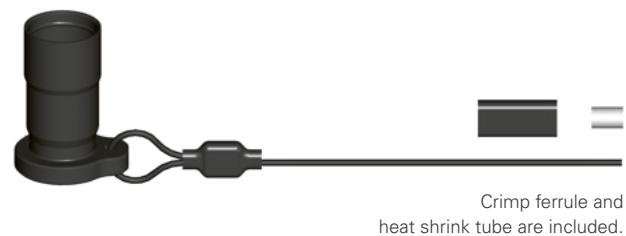


FIGURE 2

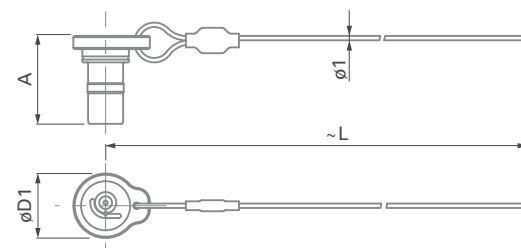
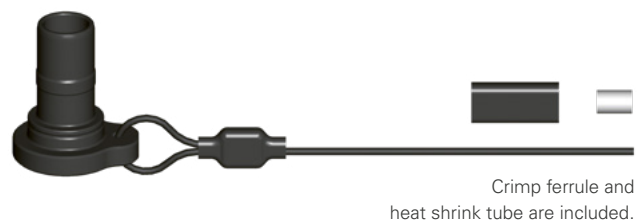
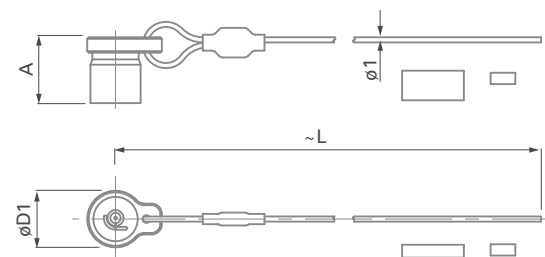
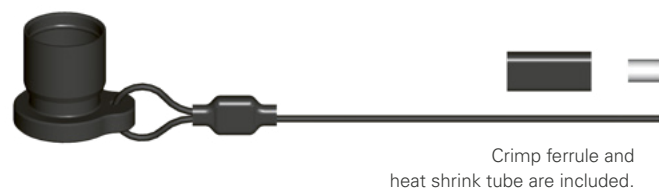
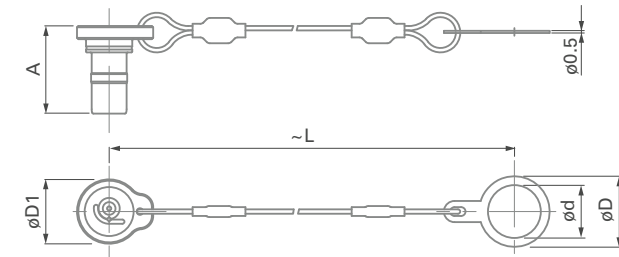


FIGURE 3



## SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 4



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

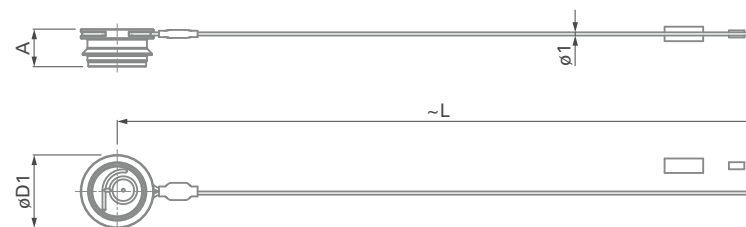
● Recommended for optimal sealing.

○ Compatible but not recommended for optimal sealing.

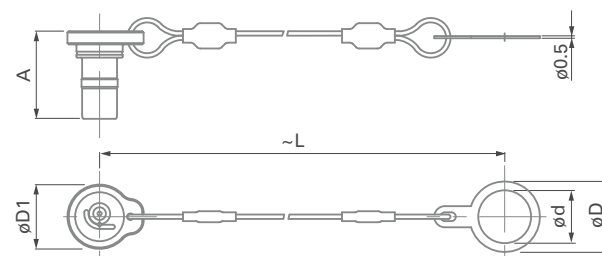
All dimensions and images shown are in millimeters and are for reference only.

## CAPS - LANYARD WITH POLYESTER CORD

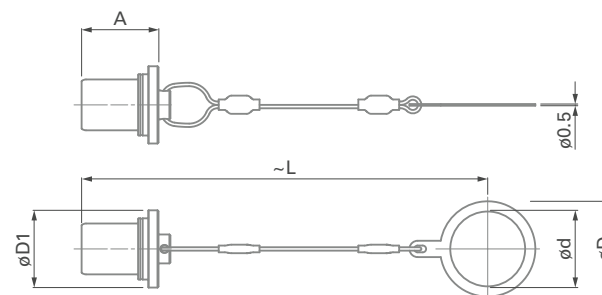
### SOFT CAP PLUG



### SOFT CAP RECEPTACLE



### METAL CAP RECEPTACLE



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

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

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

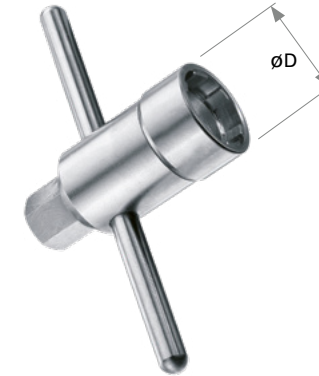
| Part number | Opening across flats | Length | Fork thickness |
|-------------|----------------------|--------|----------------|
| TX00.008    | 8                    | 96     | 2.3            |
| TX00.009    | 9                    | 102    | 2.5            |
| TX00.010    | 10                   | 104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

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

**OPEN SPANNER**  
EXTRA THIN 

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

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

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

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

Material – Hardened Tool Steel, Nickel plated.

**RLS (RATCHET LOCKING SYSTEM)**

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

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

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

## MATERIAL & SURFACE FINISH

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

| Insulator and sealing |                                | International symbol        | Flammability |
|-----------------------|--------------------------------|-----------------------------|--------------|
| Insulator             |                                | PBT, PEEK <sup>1)</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     |

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

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

## MATERIAL & SURFACE FINISH

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

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

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

<sup>1)</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>2)</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>3)</sup> Sealing performance of pin layout 204H valid only in mated condition due to coax insert.

<sup>4)</sup> 500 mating cycles for pin layout 204H due to coax insert.

## ENVIRONMENTAL & MECHANICAL DATA (RLS - RATCHET LOCKING SYSTEM)

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

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

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

<sup>3)</sup> 500 mating cycles for pin layout 204H due to coax insert

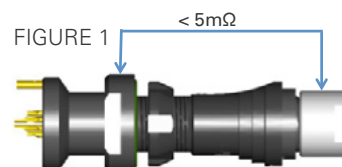
## ELECTRICAL DATA <sup>6)</sup>

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

<sup>4)</sup> Measurement points on Figure 1.

<sup>5)</sup> Size 08 connector pair.

<sup>6)</sup> Please refer to [www.fischerconnectors.com/technical](http://www.fischerconnectors.com/technical) for technical specification of coax insert.



## DATA TRANSMISSION

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

H-35 / H-46

FISCHER ULTIMATE™ USB-C

ULTIMATE USB-C

# ULTIMATE USB-C



## PLUGS



### PRE-CABLED SOLUTION

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

## RECEPTACLES



### PRE-CABLED SOLUTION

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



## FOR ULTIMATE USB-C

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

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

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

PLUGS

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

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

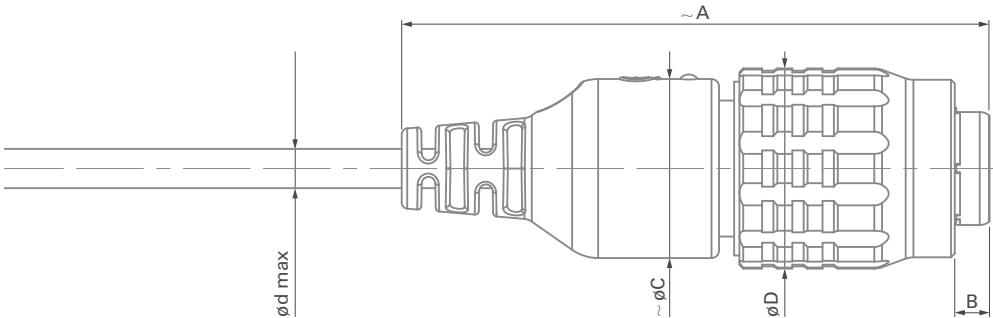
<sup>2)</sup> UP02 is IP68 mated or with sealing cap.

PLUGS

PRE-CABLED  
SOLUTION

UP02

BODY STYLE



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

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

RECEPTACLES

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

<sup>1)</sup> IP68 mated or with sealing cap.

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

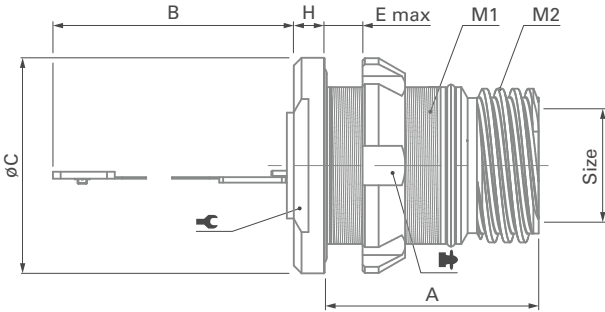
<sup>3)</sup> Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

RECEPTACLES

PRE-CABLED  
SOLUTION

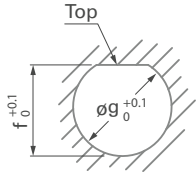
UR04

BODY STYLE



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

| Size | f    | øg   |
|------|------|------|
| 15   | 20.5 | 22.1 |



PANEL CUT-OUT

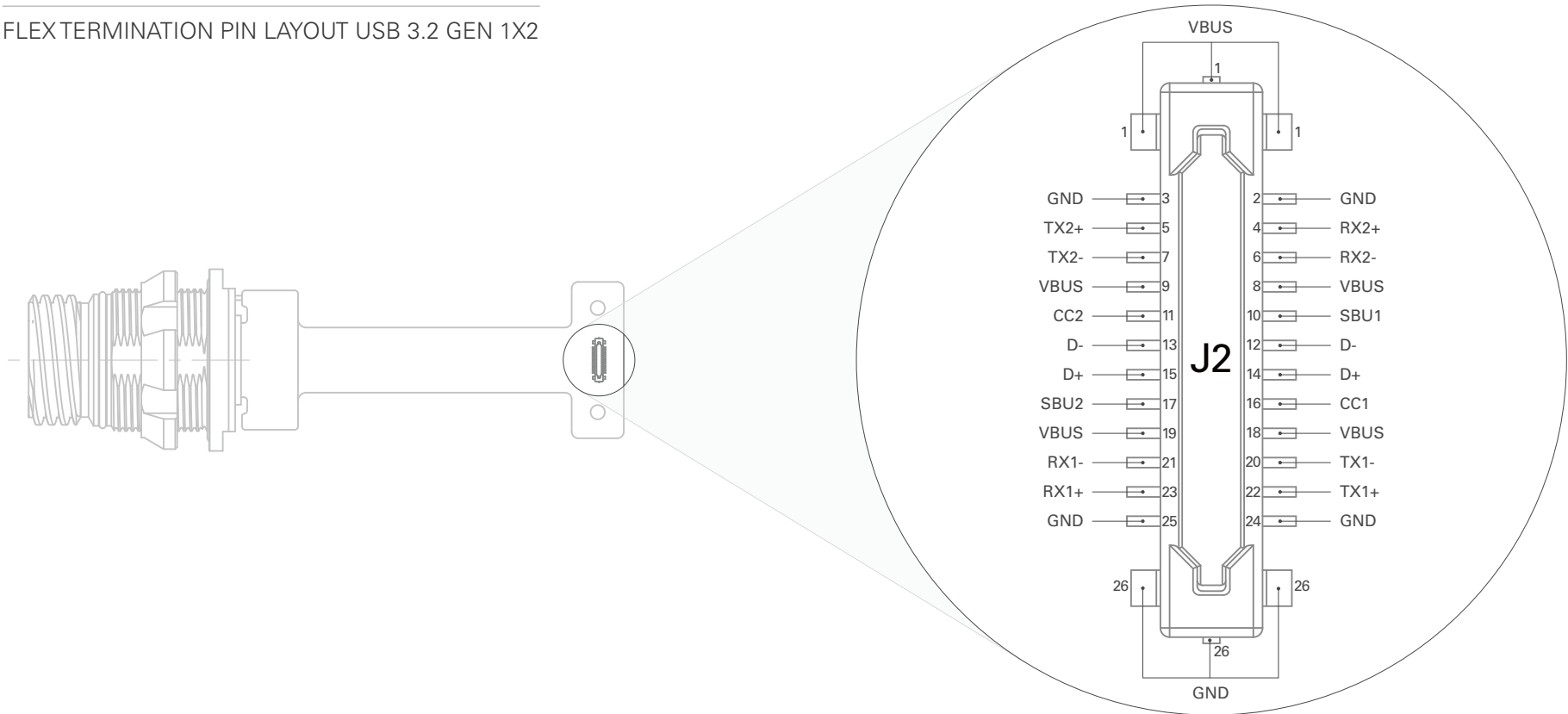
All dimensions and images shown are in millimeters and are for reference only.

## RECEPTACLES

### PRE-CABLED SOLUTION

#### UR04

FLEX TERMINATION PIN LAYOUT USB 3.2 GEN 1X2



RECEPTACLES

PRE-CABLED  
SOLUTION

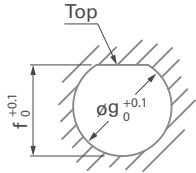
UR04

BODY STYLE



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

| Size | f    | Øg   |
|------|------|------|
| 15   | 20.5 | 22.1 |



PANEL CUT-OUT

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

CABLE SPECIFICATION

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

PRE-CABLED  
PLUG SOLUTION  
UP02 TO UP02



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

PRE-CABLED  
PLUG SOLUTION  
UP02 TO USB-C



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

PRE-CABLED RECEPTACLE  
SOLUTION  
UR04 TO USB-C



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

## PLUGS &amp; RECEPTACLES

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

## Body style

## UltiMate Plug = UP

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

## UltiMate Receptacle = UR

■ UR04 = Panel rear mounted

## Sealing level

Panel mounted:

■ V = Hermetic

## Locking system

Cable mounted plug:

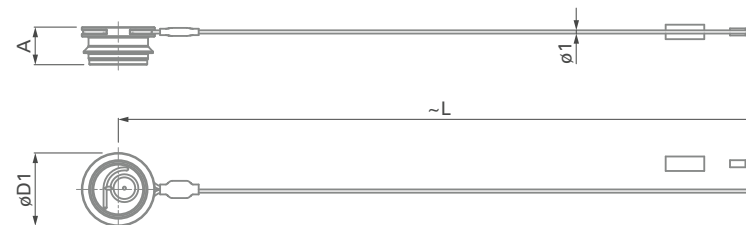
■ R = RLS (Ratchet Locking System)

## Connector size

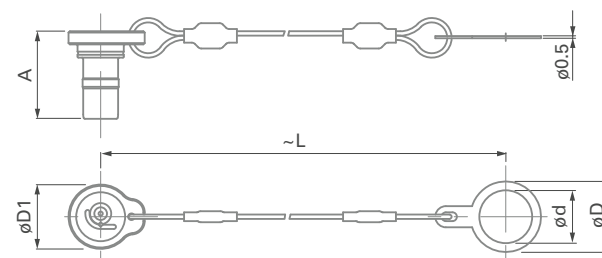
■ 15 = Size 15

## CAPS - LANYARD WITH POLYESTER CORD

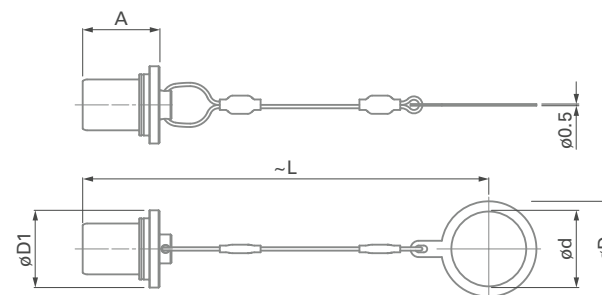
### SOFT CAP PLUG



### SOFT CAP RECEPTACLE



### METAL CAP RECEPTACLE



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

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

Tooling

FISCHER ULTIMATE™ USB-C

SPANNER & NUT DRIVER

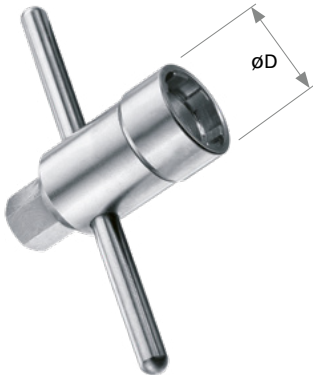
OPEN SPANNER  
EXTRA THIN 



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

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

NUT DRIVER WITH T-HANDLE  
AND HEX DRIVE 



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

Material – Hardened Tool Steel, Nickel plated.

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

## MATERIAL & SURFACE FINISH

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

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

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

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

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

## ENVIRONMENTAL & MECHANICAL DATA

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

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

## FISCHER **ULTIMATE™** USB-C

H-49 / H-63

# ULTIMATE 80

## PLUGS



### PRE-CABLED SOLUTION

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



### CONNECTOR

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



### PANEL REAR MOUNTED

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

## RECEPTACLES



### PRE-CABLED SOLUTION

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



### CONNECTOR

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



### PANEL REAR MOUNTED

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

## FOR ULTIMATE 80

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

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

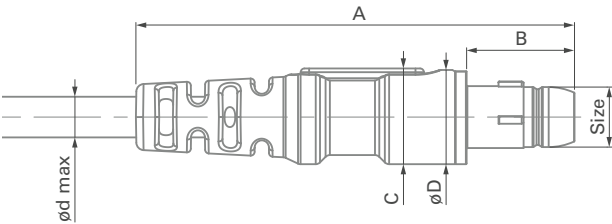
<sup>1)</sup> Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

PLUGS

PRE-CABLED

UP81

BODY STYLE

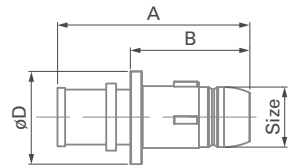


| Size | A    | B    | C    | øD   | ød max |
|------|------|------|------|------|--------|
| 08   | 58.0 | 14.2 | 12.6 | 12.4 | 5.5    |

CONNECTOR

UP81

BODY STYLE



| Size | A    | B    | øD   |
|------|------|------|------|
| 08   | 25.2 | 15.7 | 12.4 |

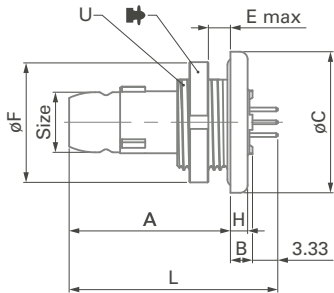
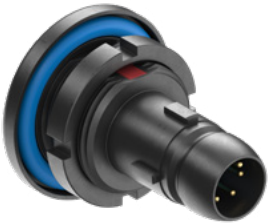
All dimensions and images shown are in millimeters and are for reference only.

PLUGS

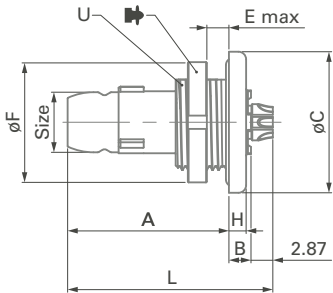
PANEL REAR MOUNTED

UP80

BODY STYLE



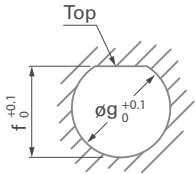
PCB



SOLDER

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

| Size | f     | øg   |
|------|-------|------|
| 08   | 12.05 | 12.8 |



PANEL CUT-OUT

## RECEPTACLES

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

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

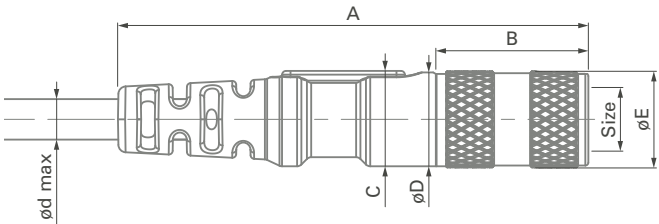
<sup>2)</sup> Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

RECEPTACLES

PRE-CABLED  
SOLUTION

UR80

BODY STYLE

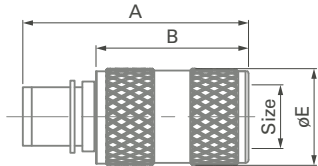


| Size | A    | B    | C    | øD   | øE   | ød max |
|------|------|------|------|------|------|--------|
| 08   | 62.2 | 20.2 | 12.6 | 12.4 | 12.8 | 5.5    |

CONNECTORS

UR80

BODY STYLE



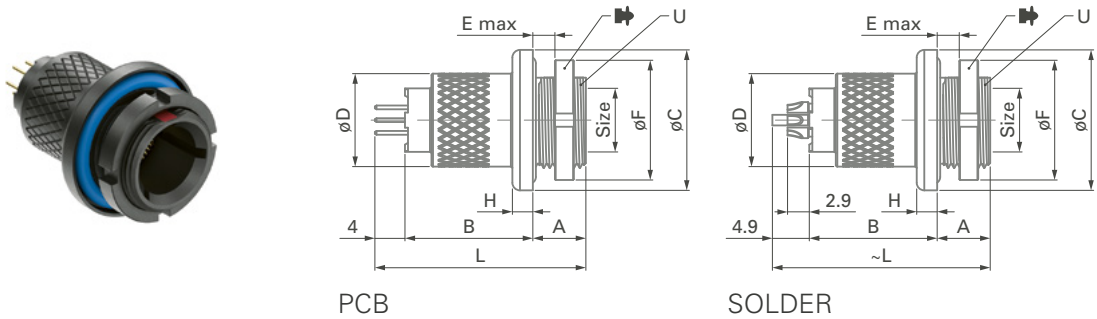
| Size | A    | B    | øE   |
|------|------|------|------|
| 08   | 29.6 | 20.2 | 12.8 |

RECEPTACLES

PANEL REAR  
MOUNTED

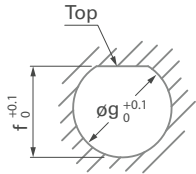
UR81

BODY STYLE



| Size | Termination | A   | B    | $\phi C$ | $\phi D$ | U            | $\phi F$ | H   | E <sub>max</sub> | 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     | $\phi g$ |
|------|-------|----------|
| 08   | 12.05 | 12.8     |



PANEL CUT-OUT

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

# ELECTRICAL & CONTACT CONFIGURATIONS

| Size | Pin layout | Layout reference       | Number of contacts | Contact diameter <small>[mm]</small> | Wire size <sup>3)</sup>                    |                                          | PCB contacts                     | Current rating <small>[A]</small>     | Rated voltage r.m.s <small>[V]</small> | Test voltage <small>[kV]</small> in mated position |                    |                 |                    |
|------|------------|------------------------|--------------------|--------------------------------------|--------------------------------------------|------------------------------------------|----------------------------------|---------------------------------------|----------------------------------------|----------------------------------------------------|--------------------|-----------------|--------------------|
|      |            |                        |                    |                                      | IEC 60512-4-1 Test 4a                      |                                          |                                  |                                       |                                        |                                                    |                    |                 |                    |
|      |            |                        |                    |                                      | Solder contacts <sup>2)</sup>              | Crimp contacts                           | Pin diameter <small>[mm]</small> | 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   |            | 006 /105 <sup>1)</sup> | 6                  | 0.7                                  | max ø1.02 mm<br>AWG19 [1]<br>AWG20 [26/34] | max ø0.85 mm<br>min ø0.48 mm<br>AWG22-28 | 0.5                              | 2x 9 <sup>6)</sup><br>2x 2<br>2x 0.02 | ≤ 200                                  | 0.8                                                | 1.3                | 1.5             | 2.3                |
|      |            | 007 /106 <sup>1)</sup> | 7                  | 0.7                                  | max ø1.02 mm<br>AWG19 [1]<br>AWG20 [26/34] | max ø0.85 mm<br>min ø0.48 mm<br>AWG22-28 | 0.5                              | 2x 9 <sup>6)</sup><br>3x 2<br>2x 0.02 | ≤ 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 and UP80 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.

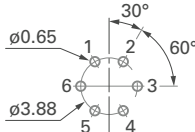
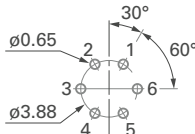
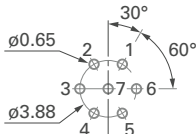
<sup>4)</sup> Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must 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 plug / receptacle <sup>1)</sup>

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

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

MECHANICAL CODING <sup>2)</sup>

| PLUGS       | Code Y                                                                                |
|-------------|---------------------------------------------------------------------------------------|
|             |    |
| RECEPTACLES | Code Y                                                                                |
|             |  |

<sup>2)</sup> View from front of connectors. For further details see part numbering.

# PLUGS & RECEPTACLES

Example:

| Connector Design |   |    |
|------------------|---|----|
| UP81             | Q | 08 |
| UR81             | W | 08 |

| Contact Block |     |   |
|---------------|-----|---|
| M             | 105 | C |
| F             | 007 | P |

| Housing |   |
|---------|---|
| BB      | Y |
| BB      | Y |

| Standard options |   |   |   |
|------------------|---|---|---|
| Z                | 2 | Z | A |
| S                | 2 | N | A |

## Body style

### UltiMate Plug = UP

- UP81 = Cable mounted
- UP80 = Panel Rear Mounted

### UltiMate Receptacle = UR

- UR80 = Cable mounted
- UR81 = Panel rear mounted

## Sealing level and locking system

### Ultimate 80 Plug

Cable mounted (UP81):

- Q = Sealing not applicable, quick release locking

Panel rear mounted (UP80):

- Q = Sealing watertight, quick release locking

### Ultimate 80 Receptacle:

Cable mounted (UR80):

- Z = Sealing not applicable, quick release locking

Panel Rear mounted (UR81):

- W = Water sealed and quick release locking

## Connector size

- 08 = Size 08

## Housing Material

- A = ALUMINUM

## Grounding

### Panel mounted:

- N = None (UR81, UP80)

### Cable mounted:

- Z = Not applicable (UP81, UR80)

## Insulator Material

- 2 = PEEK

## O-ring material

### Receptacle:

O-rings at plug and panel interfaces

- 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

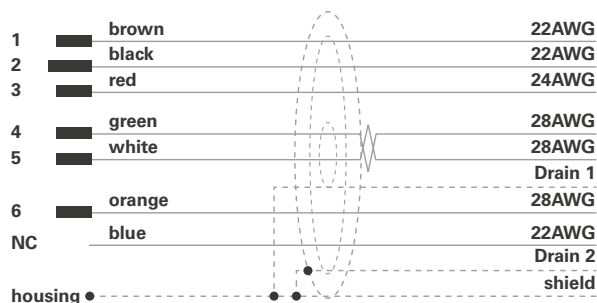
- M = Male contacts

- F = Female contacts

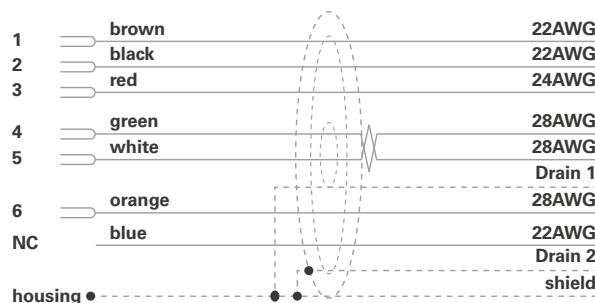
## CABLE SPECIFICATION FOR PRE-CABLED 6 CONTACTS

- 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

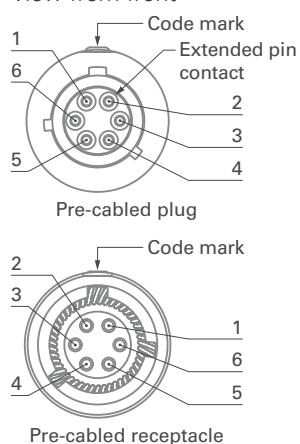
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

### 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<br>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<br>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 |

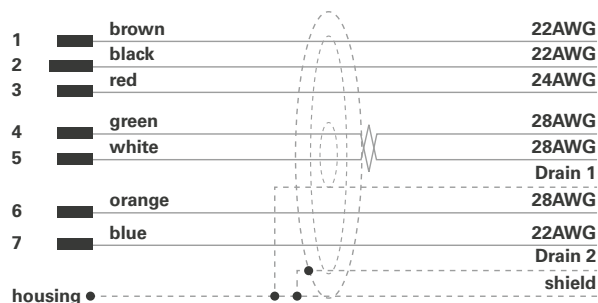
**REMARK:** Pin No. can be assigned according to NATO AEP-4851 & NATO AEP-4695.

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

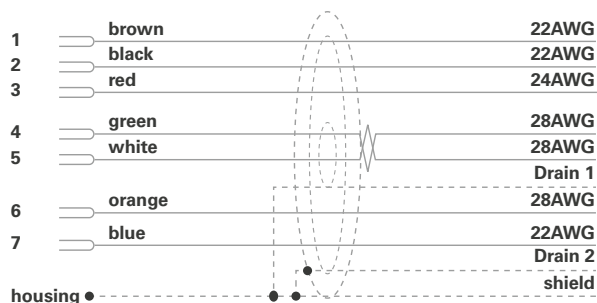
## CABLE SPECIFICATION FOR PRE-CABLED 7 CONTACTS

- 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

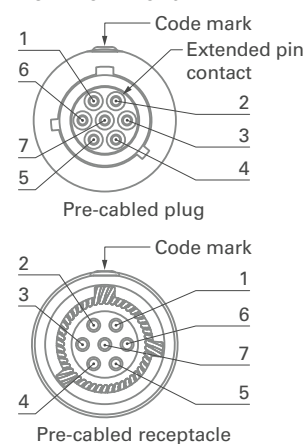
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

### Shield

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

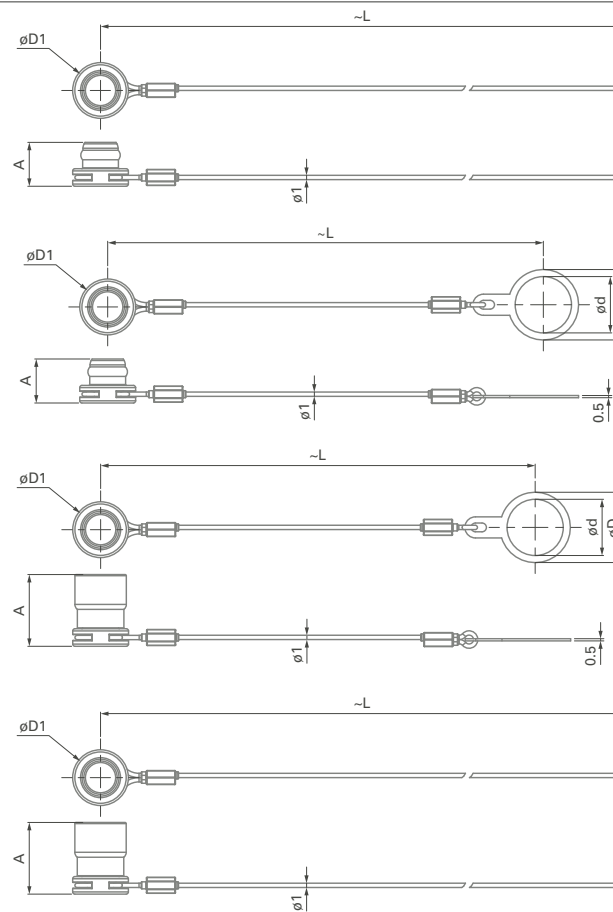
## WIRING DIAGRAM FOR STANDARD PRE-CABLED 7 CONTACTS

View from front



| WIRE         | PRE-CABLED PLUG SOLUTION                  |
|--------------|-------------------------------------------|
|              | 1 m, open end<br>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 |

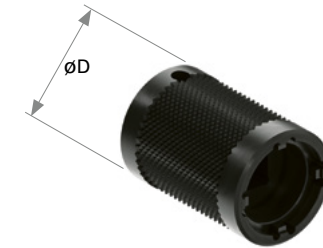
| WIRE         | PRE-CABLED RECEPTACLE SOLUTION            |
|--------------|-------------------------------------------|
|              | 1 m, open end<br>Pin number               |
| AWG22 brown  | 1                                         |
| AWG22 black  | 2                                         |
| 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**

| Size | Plug |      | Receptacle         |      | A    | øD1  | L   | ød   | øD | Part number     |
|------|------|------|--------------------|------|------|------|-----|------|----|-----------------|
|      | UP80 | 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 | 95  | 12.8 | 16 | UCP80P 1B2 A095 |
|      |      | ●    |                    |      | 16.9 | 12.7 | 200 | -    | -  | UCP80C 1B2 A200 |

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

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

**NUT DRIVER****NUT DRIVER  
WITH SQUARE SOCKET\***

\* For use with torque wrenches ¼" (6.4 mm).

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

Material – PA

## ENVIRONMENTAL & MECHANICAL DATA

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

<sup>1)</sup> Corrosion resistance dependent on body style. 400h for UR81 and UP80 (panel rear mounted plug and 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                                          |
|------------------------------------|-----------------------------------|---------------------------------------------------|
| Contact resistance (typical value) | < 10 mΩ (typical value)           | MIL-STD-202 Method 307                            |
| Shell resistance (typical value)   | < 50 mΩ (cabled; new condition)   | MIL-STD-202 Method 307                            |
| Insulation resistance              | > 10 <sup>10</sup> Ω              | MIL-STD-883 Method 1003<br>MIL-STD-202 Method 302 |
| Shielding effectiveness            | > 54 dB up to 1 GHz <sup>1)</sup> | EIA-364-66A                                       |

<sup>1)</sup> For higher frequency range, contact our technical support.

## MATERIAL & SURFACE FINISH

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