# µCom & TVµCom USB3.0

## Harsh Environment Connectors

**NEW**

## Description

These specific adaptions of µCom and TVµCom are optimized for USB3.0 and intended for connection and disconnection in harsh environment military and aerospace application.

## Main Features

**Data Transmission :**
- **USB speciation 3.0.**
- **Data rate up to 5Gb/s for high speed USB**
- **Hot pluging : anables connection and disconnection while the system is running.**
- **4 pairs totally insulated throughout the connector : minimum cross-talk between pairs.**
- **Patented special interfacial shapes : minimum perturbation at the interface of each pair.**

**µCom :**
- Environmental testing based on MIL-DTL-38999 series III military specifications (Thread version).
- Environmental testing based on MIL-DTL-26482 military specifications (Push Pull version).
- Miniature : 15 mm(.59˝) max external diameter.
- Receptacle and in-line receptacle compatible with both thread and Push Pull plugs.
- Machined Brass shells
- Salt spray :
  - 500 h with Unplated brass shell ✓
  - 500 h with Olive Drab Cadmium plating
  - 500 h with Black Nickel plating ✓

**TVµCom :**
- Based on MIL-DTL-38999 series III – Shell size 11
- Aluminium shells
- Salt spray :
  - 48 h with Nickel plating ✓
  - 500 h with Olive Drab Cadmium plating
  - 500 h with Black Zinc Nickel plating ✓
  - 1000 h with Marine Bronze shell ✓
  - 500 h with Passivated Stainless steel shell ✓

- Solder contact: max AWG24
- Crimp contact: AWG 24 to 28
- Temperature range : - 55°C / + 125°C
- IP68 sealing mated and unmated for PCB receptacles
- 1500 Vrms Dielectric Withstanding Voltage

✓ : RoHS compliant

## Markets & Applications

C5ISR, Battlefield, Ground Vehicles
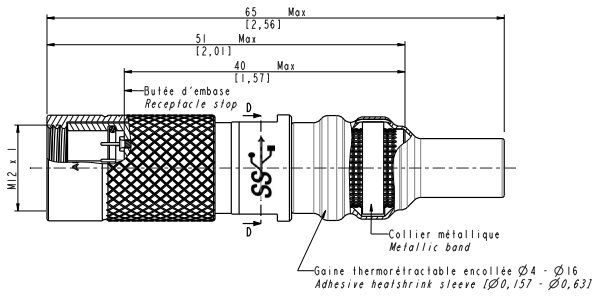
Navy

Commercial Aerospace

Railway

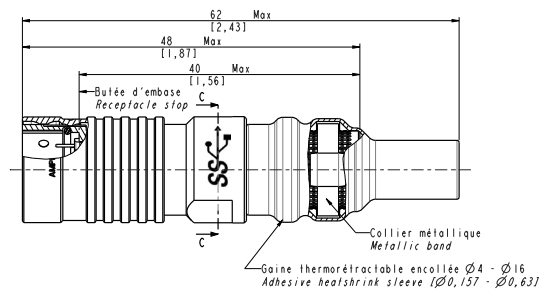www.amphenol-socapex.com
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# µCom-USB3

## Overall dimension

### Plug with banding platform

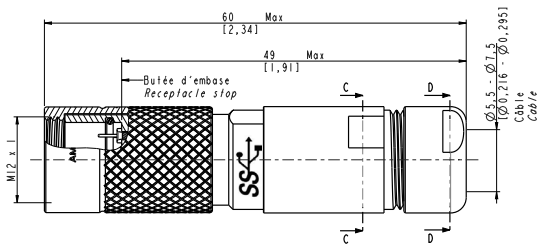Part number type: **UCOM-USB3 P T X X B**

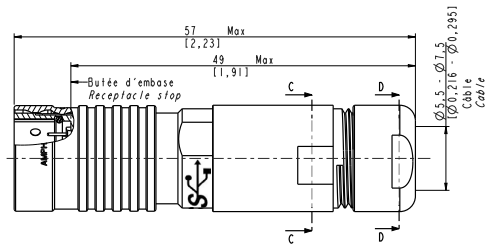Part number type: **UCOM-USB3 P P X X B**

Thread version

Push-pull version

### Plug with cable gland backshell

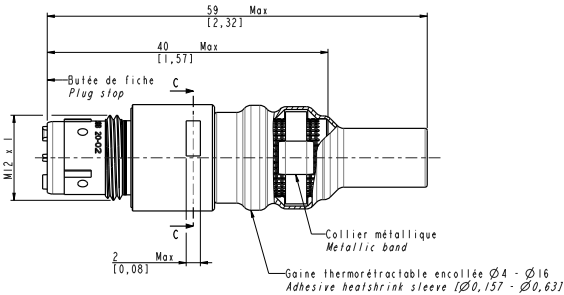Part number type: **UCOM-USB3 P T X X GA**

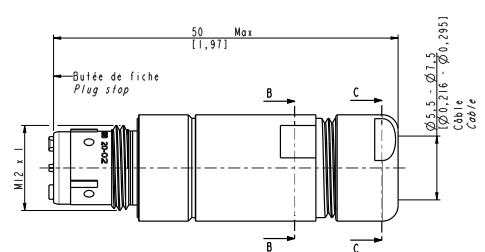Part number type: **UCOM-USB3 P P X X GA**

Thread version

Push-pull version

### In-line receptacle

Part number type: **UCOM-USB3 L X X B**

Part number type: **UCOM-USB3 L X X GA**

Banding platform

Cable gland backshell

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# µCom-USB3

## Overall dimension

### Panel mount receptacle with banding platform

Part number type: **UCOM-USB3 R X X**



Butée de fiche
*Plug stop*

Collier métallique
*Metallic band*

Gaine thermorétractable encollée Ø4 - Ø16
*Adhesive heatshrink sleeve [Ø0,157 - Ø0,63]*

Épaisseur panneau
*Panel thickness*
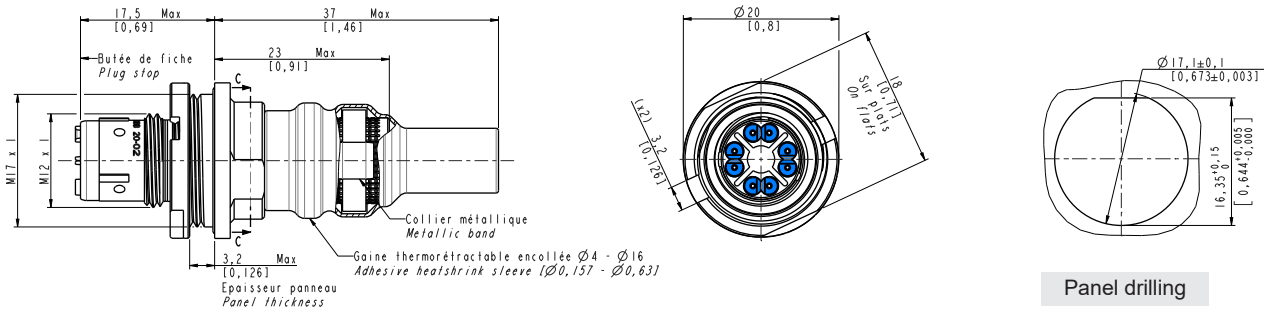
Panel drilling

### PCB receptacle for printed circuit board

Part number type: **UCOM-USB3 R P X**



Butée de fiche
*Plug stop*

Épaisseur panneau
*Panel thickness*

Joint torique
*O'ring*

Panel drilling

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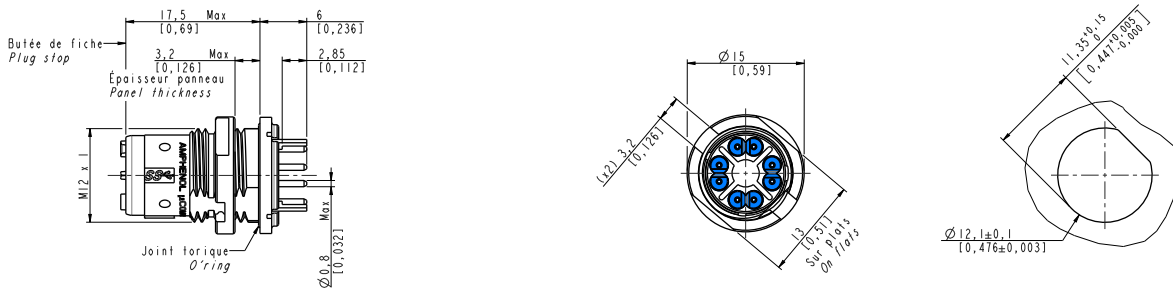
## Accessories

### CAPS for receptacles

IP68 metallic cap

**x** to be replaced by

**B** *for Black electrophoresis plating*
**G** *for Olive drab cadmium plating*
**U** *for Unplated brass*

joint torique
*O-ring seal*

2 férules metalliques serties
*2 crimped metallic ferrules*

cordelette nylon noire
*black nylon cord*

**31057 X**       **31139 X**

Ø4,1 [0,161]     Ø12 [0,48]

IP68 metallic cap with metallic tie on panel  **Or**  IP68 metallic cap with a 012 fixation ring
Nota: plan a hole on the panel

IP68 neoprene cap - Part number: **31091**
*Nota: plan a type M3 hole on the panel*

### CAPS for plugs

Cap in neoprene
Part number: **31092**

### CAPS for in line receptacles

Cap in neoprene
Part number: **31093**

### Dummy female receptacle

Part number: **31131 X**

butée de fiche
*plug stop*
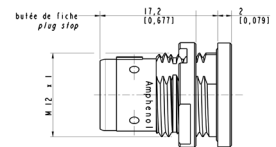
**x** to be replaced by
**B** *for Black nickel plating*
**G** *for Olive drab cadmium plating*
**U** *for Unplated brass*

## Spares

Crimp Pin **(10 pcs)**
Part number: **31537**

Crimp Socket **(10 pcs)**
Part number: **31074**

## Tools

- Nut clamping tool for receptacle
  Part number: **31055**
  Only for RPx receptacles

- Insertion tool for crimp contacts
  Part number: **31056**

- Contact positioner for M22520/2-01 crimping tool
  Part number: **31095**

Other tools:
- Brazing tool for receptacle & in-line receptacle
  Part number: **31132**

- Brazing tool for plug
  Part number: **31133**

*Nota: the cabling instructions are available upon demand  (ref. N00-040190-00).*

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# TVµCom-USB3

## Overall dimension

### Plug with banding platform

Part number type: **TV06 UCOM-USB3 X X -11 X X**



### Jam nut receptacle with banding platform

Part number type: **TV07 UCOM-USB3 X X -11 X X**



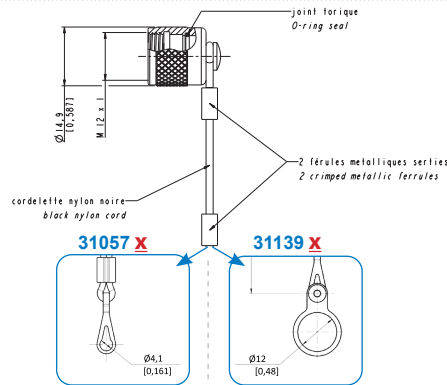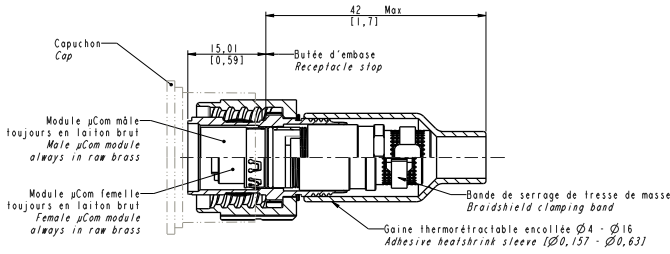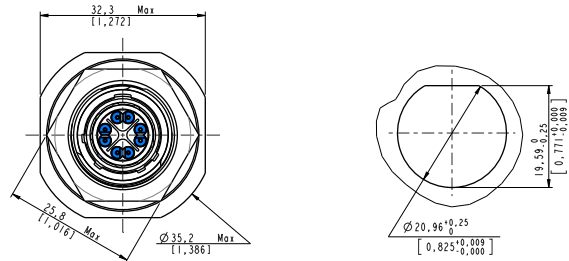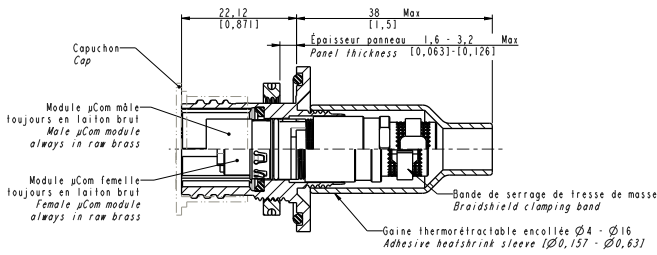Panel drilling

### Square flange receptacle with banding platform

Part number type: **TVP00 UCOM-USB3 X X -11 X X**



Panel drilling

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## Overall dimension

### Reduced flange - Jam nut receptacle with banding platform
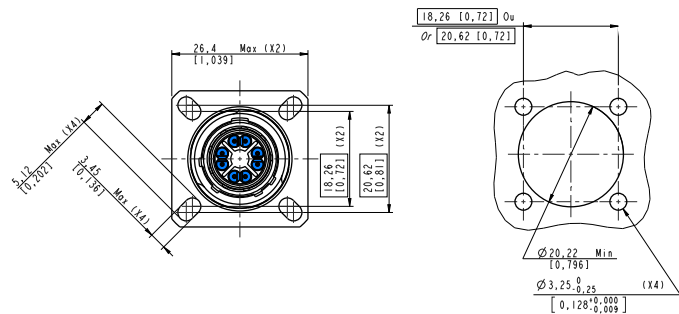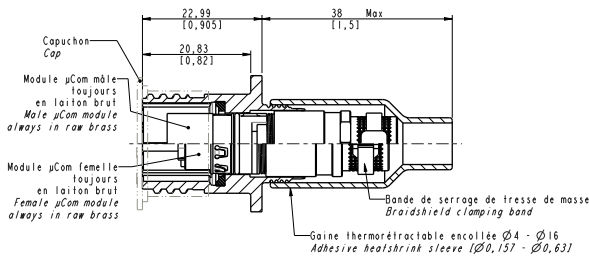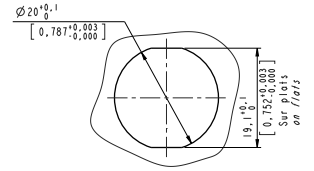
Part number type: **TV07 UCOM-USB3 X X -11 X X F312**



Capuchon
*Cap*

Module μCom mâle
toujours en laiton brut
*Male μCom module
always in raw brass*

Module μCom femelle
toujours en laiton brut
*Female μCom module
always in raw brass*

Épaisseur panneau 1,6 - 3,2 Max
*Panel thickness [0,063]-[0,126]*

Bande de serrage de tresse de masse
*Braidshield clamping band*

Gaine thermorétractable encollée Ø4 - Ø16
*Adhesive heatshrink sleeve [Ø0,157 - Ø0,63]*

Panel drilling

### Stand off Reduced flange - Jam nut receptacle for PCB

Part number type: **TV07 UCOM-USB3 CI X -11 S X F059**



Capuchon
de protection
*Protective cap*

Module μCom femelle
toujours
en laiton brut
*Female μCom module
always in raw brass*

Compound

Joint torique
*O'ring seal*

Zone étamée
*Tinned area*

Axes
d'embase
*Receptacle
axis*

Position
perçage panneau
*Panel drilling
position*

Perçage circuit imprimé
vue face arrière connecteur
*PCB drilling
Connector rear view*

PCB drilling

Panel drilling

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## Accessories

**Special Backshells**
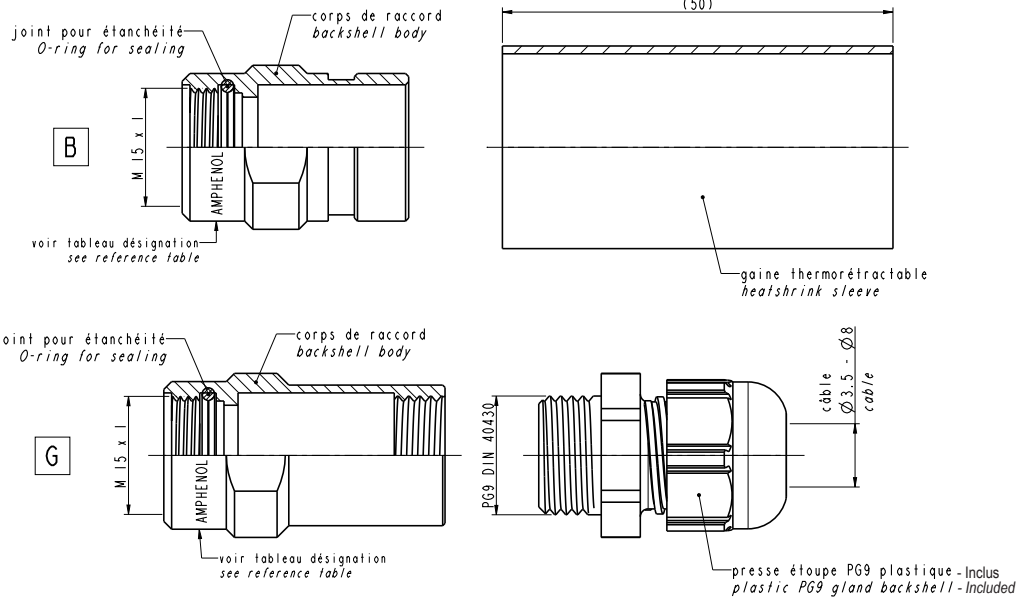


Part number type: **TV UCOM X X**

## Removal tool

Part number: **TV UCOM ODE**
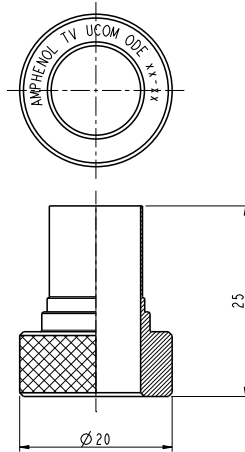


## Panel Gasket for TVP00

Part number: **JE11**
(thickness: 0,8 mm [.031])
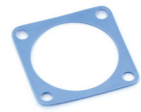


## Spares

Crimp Pin **(10 pcs)**
Part number: **31537**



Crimp Socket **(10 pcs)**
Part number: **31074**



## Tools

- Insertion tool for crimp contacts
  Part number: **31056**

- Contact positioner for
  M22520/2-01 crimping tool
  Part number: **31095**

*Nota:* the cabling instructions are available upon demand  (ref. N00-040190-00).

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# TVµCom-USB3

## Accessories

## Description

Silicone protective caps against dust and water.

## Main features

- **Compatible with Jam nut and Square flange receptacles**
- IP67 (1m, 1 hour sealing)
- Protection against dust and water
- Silicone 200°C
- Nylon cord
- No noise (rubber material)



## Overall dimensions

| For Square flange receptacle |
| --- |
| Part number : **RC00N11** |



| For Jam nut receptacle |
| --- |
| Part number : **RC07N11** |



| Size | Ø C  +0,25 / 0 | Ø A Max | Ø B Max | D Max |
| --- | --- | --- | --- | --- |
| **11** | 22,63 | 22,55 | 17,2 | **140** |
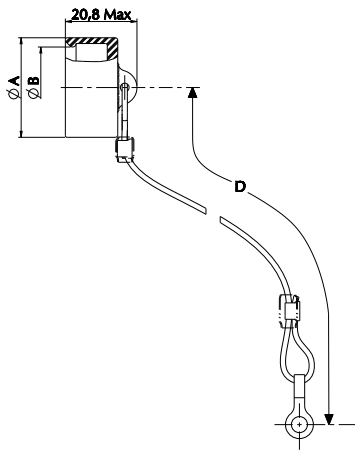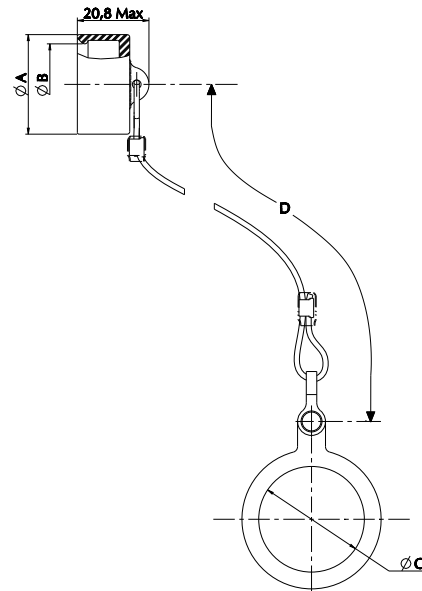
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# TVμCom-USB3

## Accessories

## Description

**The largest range of protective caps with IP68 protection level.**

## Main features

- **Compatible with Plugs, Jam nut (Standard and Reduced Flange) and Square Flange receptacles**
- IP 68 (permanent sealing)
- Protection again dust, water and moisture
- EMI function
- Nylon cord, stainless steel rope or metallic chain

## Overall dimensions
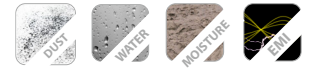
| For Square flange receptacle | For Jam nut receptacle | For Jam nut Reduced flange receptacle |
|---|---|---|
| Part number type : **BEC X TV X 11** | Part number type : **BER X TV X 11** | Part number type : **BER X TV X 11F057** |
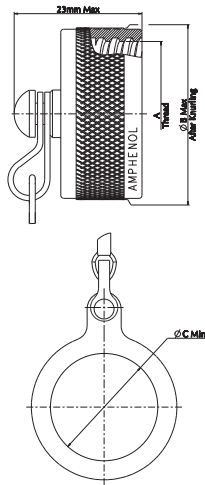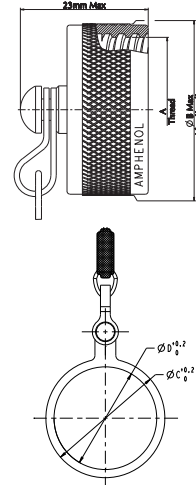


### For Plugs

Part number type : **BF X TV X 11**
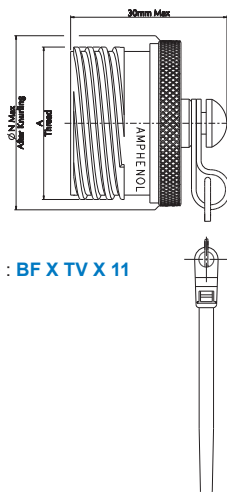
Part number type : **BFROTV X 11**
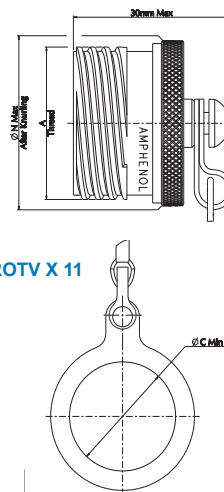


**Lanyard (Attachment) Length**

| Cap type | Metallic chain length | Nylon cord length | Stainless steel rope length |
|---|---|---|---|
| **BEC/BER for receptacle** | | 127 (+13,-7) | |
| **BF for plug** | | 160±5 | |

| Size | A thread 0.1P-0.3L-TS Class 2A (External) Class 2B (Internal) (inch) | ØB Max (After Knurling) | ØC Min | ØN Max | Ø C +0.2 0 | Ø D +0.2 0 |
|---|---|---|---|---|---|---|
| **11** | .7500 | 22,60 | 21.97 | 20.50 | 25.5 | 20.5 |

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# TVµCom-USB3

## Accessories

## Description

**High end protection with metallic self-closing function.**

## Main features

- **Compatible with Square flange receptacles**
- Material: Aluminum
- Platings: Olive drab cadmium, Black zinc nickel, Electroless nickel and Black electrophoresis
- IP67 (1m, 1 hour sealing)
- Protection against dust, water and moisture
- EMI function
- Fast self-closing function
- Space and weight saving: no need for Dummy receptacle
- No noise from pending cap

## Overall dimensions

| For Square flange receptacle |
|:---:|

Part number type : **TV SCC11 X**
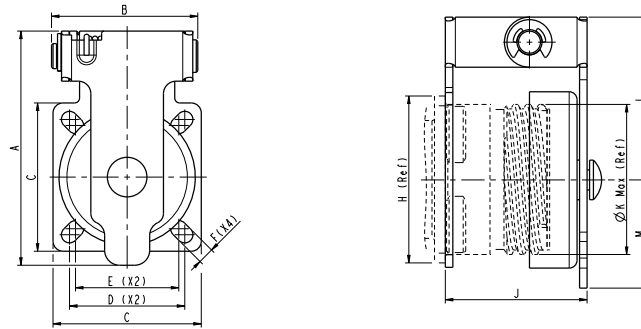


| Size | A | B | C | D | E | F | H | J | ØK Max | L | M | N | ØP Min | ØQ ± 0,13 |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| 11 | 43,0 | 27,2 | 27,2 | 20,62 | 18,26 | 3,25 | 26,19 | 31,2 | 19,05 | 27,0 | 16,0 | 20,62 | 15,88 | 3,25 |

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# HIGH RELIABILITY USB3.0 CORDSETS

## Description

**This USB3.0 cable is specifically designed for fixed or portable military or industrial application.**

## Design

| | | |
|---|---|---|
| **USB3.0 2 X Data Pair** | **Conductors** | 2 x 28 AWG Stranded tinned copper wire (Ø0,39mm) |
| | **Insulation** | Polyethylene (Ø1,0mm) |
| | **Colors** | Pair 1 : Purple and orange<br>Pair 2 : Blue and yelloz |
| | **Drain** | 2 x 28 AWG Stranded tinned copper drain wire (Ø0,39mm) |
| | **Shield** | Aluminate foil and plastic tape overlapped |
| **USB2.0 Data Pair** | **Conductors** | 2 x 28 AWG Stranded tinned copper wire (Ø0,39mm) |
| | **Insulation** | Polyethylene (Ø0,73mm) |
| | **Colors** | Green and White |
| **Power Pair** | **Conductors** | 2 x 24 AWG Stranded tinned copper wire (Ø0,6mm) |
| | **Insulation** | Polyethylene (Ø1,1mm) |
| | **Colors** | Red and Black |
| **Overall** | | Fillers, Aluminate foil overlapped and 36 AWG shield braiding of tinned copper wires |
| **Jacket** | **Insulation** | Polyurethane (Ø5,7±0,2mm) |
| | **Color** | Black glossy finish |

## Electrical characteristics at 20°c

| | | | |
|---|---|---|---|
| **USB3.0 2 X Data Pair** | **Test voltage** | 500 V | |
| | **Impedance** | 90±7% Ohm | |
| | **Attenuation (dB/100m)** | 625 MHz – 10<br>1 250 MHz – 15<br>2 500 MHz – 25 | 5 000 MHz – 36<br>7 500 MHz – 47 |
| | **Outer screen resistance** | ≤ 15 Ohm/km | |
| **USB2.0 Data Pair** | **Test voltage** | 500 V | |
| | **Impedance** | 90±15% Ohm | |
| | **Attenuation (dB/100m)** | 1 MHz – 4,0<br>4 MHz – 7,8<br>8 MHz – 11,4<br>12 MHz – 13,4<br>24 MHz – 19,0 | 48 MHz – 27,0<br>96 MHz – 38,0<br>200 MHz – 64,0<br>400 MHz – 116,0 |
| **Power Wire** | **Conductor resistance** | ≤ 85 Ohm/km | |
| | **Insulation resistance** | ≥ 200 MOhm*km | |
| | **Operating voltage** | ≤ 1 000 V | |
| | **Test voltage** | 500 V | |

## Other characteristics

Halogen Free Flame Retardant

Oil resitance acc. to 1584, sec. 480 (60°)

Flame retardant acc. to UL 1581, sec. 1090 (H)

Flame retardant acc. to IEC 60332-1-2

RoHS compliant (Directive 2011/65/EC)

Resistance to microbial/fungus growth : MIL-STD-810G, method 508.6 = grade 1

Permissible temperature range for transport, installation and operating: -40°C up to 85°C

Min. bending radius allowed : repeated 10 X Ø single 5 X Ø

Weight : 46 kg/km

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# UCOM-USB3 & TVUCOM-USB3

## How to order UCOM- USB3

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| Series | Shell type | Contact type (avoid for RP shell type) | Shells material and finish | Backshell type (avoid for receptacle) |
| UCOM-USB3 | PT | C | B | B |

### 1. Series

| | |
|---|---|
| UCOM-USB3 | μcom for USB3.0 |

### 2. Shells type

| PT | Plug | Thread version |
|---|---|---|
| PP | | Push-pull version |
| L | In line receptacle | |
| R | Panel mount receptacle | |
| RP | PCB receptacle for printed circuit board | |

### 3. Contact type (avoid for RP shell type)

| C | Crimp version |
|---|---|
| S | Solder version |

### 4. Shell material & finish

| B | | Black Nickel ✓ |
|---|---|---|
| G | Brass shell | Olive drab cadmium |
| U | | Unplated brass ✓ |

### 5. Backshell type (avoid for receptacle)

| B | Banding platform |
|---|---|
| GA | Gland backshell |

## How to order TVUCOM- USB3

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| Shell type | Series | Contact type | Shells material and finish | Shell size | Contact gender | Coding | Deviation (only for TV07 shell type) |
| TV06 | UCOM-USB3 | C | W | 11 | P | - | - |

### 1. Shells type

| TV06 | Plug | |
|---|---|---|
| TV07 | Receptacle | Jam nut |
| TVP00 | | Square flange |

### 2. Series

| | |
|---|---|
| UCOM-USB3 | μcom for USB3.0 |

### 3. Contact type (avoid for RP shell type)

| C | Crimp version |
|---|---|
| S | Solder version |
| CI | PCB contact (only with TV07 shell type and F059 deviation) |

### 4. Shells material and finish

| W | | Olive Drab Cadmium plating |
|---|---|---|
| F | Aluminium shell | Nickel plating ✓ |
| ZN | | Black Zinc Nickel ✓ |
| B | Marine bronze shell ✓ | |
| K | Passivated stainless steel ✓ | |

### 5. Shell size

| 11 | Shells size 11 |
|---|---|

### 6. Contact gender

| P | Pin contact |
|---|---|
| S | Socket contact |

### 7. Coding

| | Coding N | C | Coding C |
|---|---|---|---|
| A | Coding A | D | Coding D |
| B | Coding B | E | Coding E |

### 8. Deviation (only for TV07 shell type)

| F312 | Jam nut Reduced flange receptacle with banding platform |
|---|---|
| F059 | Stand off - Jam nut Reduced flange receptacle for PCB (mandatory with CI contact type) |

✓: RoHS compliant

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# UCOM-USB3 & TVUCOM-USB3

## How to order - Special Backshells

| 1. | 2. | 3. |
|---|---|---|
| Series | Shell material and finish | Backshell type |
| TVUCOM | W | B |

### 1. Series

| TVUCOM | Backshell |
|---|---|

### 2. Shells material and finish

| W | | Olive Drab Cadmium plating |
|---|---|---|
| F | Aluminium shell | Nickel plating ✓ |
| ZN | | Black Zinc Nickel ✓ |
| B | Marine bronze shell ✓ | |

### 3. Contact gender

| B | Backshell for heatshrink sleeve |
|---|---|
| G | Backshell for PG gland |

## How to order Protective caps - Silicone Caps

| 1. | 2. | 3. | 4. |
|---|---|---|---|
| Series | Protection cap type | Wire type | Shell size |
| RC | 00 | N | 11 |

### 1. Series

| RC | Rubber caps |
|---|---|

### 2. Protection cap type

| 00 | For square flange receptacle |
|---|---|
| 07 | For jam nut receptacle |

### 3. Wire type

| N | Nylon cord |
|---|---|

### 4. Shell size

| 11 | Shells size 11 |
|---|---|

## How to order Protective caps - Standard Metallic Caps

| 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|
| Series | Protection cap type | Wire type | Connector type | Material and finish | Corresponding connector shell size | Deviation |
| B | EC | N | TV | W | 11 | - |

### 1. Series

| B | Cap |
|---|---|

### 2. Protection cap type

| EC | For square flange receptacle |
|---|---|
| ER | For jam nut receptacle |
| F | For plug |

### 3. Wire type

| - | Blank for metallic chain |
|---|---|
| N | Nylon cord |
| R | Jacketed stainless steel rope |
| RO | Jacketed stainless steel rope with washer end (only for plug) |

### 4. Connector type

| TV Cap |
|---|

### 5. Material and finish

| W | Olive Drab Cadmium plating on aluminium (175°C) |
|---|---|
| ZN | Black zinc nickel plated on aluminium (175°C) ✓ |
| F | Electroless nickel plated on aluminium (200°C) ✓ |
| B | Marine bronze (200°C) ✓ |
| Z | Green zinc cobalt plated on aluminium (175°C) ✓ |

### 6. Corresponding connector shell size

| 11 | Shells size 11 |
|---|---|

### 7. Deviation (only for Jam nut Reduced flange receptacle)

| F057 | For Jam nut Reduced flange receptacle |
|---|---|

✓: RoHS compliant

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Due to technical progress, all information provided is subject to change without prior notice
Designed by Amphenol Socapex

Amphenol SOCAPEX

# UCOM-USB3 & TVUCOM-USB3

## How to order Protective caps - Metallic Self-Closing Caps

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| Series | Protection cap type | Self closing type | Shell size | Material and finish |
| TV | - | SCC | 11 | F |

### 1. Series

| TV | Metallic Self-Closing Caps |
|---|---|

### 2. Protection cap type

| - | Blank for square flange receptacle |
|---|---|

### 3. Self closing type

**Metallic Self-Closing Caps**

### 4. Shell size

| 11 | Shells size 11 |
|---|---|

### 5. Material and finish

| W | Olive Drab Cadmium plating on aluminium (175°C) |
|---|---|
| ZN | Black zinc nickel plated on aluminium (175°C) ✓ |
| F | Electroless nickel plated on aluminium (200°C) ✓ |
| B | Black electrophoresis on aluminium (125°C) ✓ |

## How to order HIGH RELIABILITY USB3.0 CORDSETS

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| Series | Type | USB3.0 wiring | Length | Mandatory |
| USB3 | AA | CROSSED | 050 | PU HFFR |

### 1. Series

| USB3 | USB3.0 Cordset |
|---|---|

### 2. Shell type

| AA | Cordset with overmoldded USB type A plug on each end |
|---|---|

### 3. Wiring (USB3.0 cordset only)

| CROSSED | Crossed wiring |
|---|---|
| STRAIGHT | Straight wiring |

**Important note :**
- Crossed cordset will have a black overmolding while straight cordset will have a blue overmolding.
- **USB3.0 cordset will be out of his specification over 3,00m length.**

### 4. Length

| 050 | 0.5 m / 1,64 ft |
|---|---|
| 100 | 1 m / 3.28 ft |
| 150 | 1.50 m / 4.92 ft |
| 180 | 1.80 m / 5.91 ft |
| 200 | 2 m / 6.56 ft |
| 250 | 2.50 m / 8.2 ft |
| 300 | 3 m / 9.84 ft |
| 350 | 3.50 m / 11.48 ft |
| 400 | 4 m / 13.12 ft |
| 450 | 4.5 m / 14.76 ft |
| 500 | 5 m / 16.40 ft |
| 600 | 6 m / 19,68 ft |
| 700 | 7 m / 22.96 ft |
| 800 | 8 m / 26.24 ft |
| 900 | 9 m / 29.52 ft |
| 1000 | 10 m / 32.80 ft |

### 5. Mandatory

| PU HFFR | Halogen Free Flame Retardant |
|---|---|

## How to order HIGH RELIABILITY USB3.0 CABLE

| Part number | USB | Length |
|---|---|---|
| 191-030943-00 | USB3.0 | 300m |

**Amphenol SOCAPEX**