

μCom & TVμCom

USB3.2 Gen1

Harsh Environment Connectors



Description

These specific adaptations of μCom and TVμCom are optimized for USB3.2 Gen1 and intended for connection and disconnection in harsh environment military and aerospace applications.

Main Features

Data Transmission:

- **USB specification 3.2 Gen1.**
- **Data rate up to 5Gb/s for high speed USB**
- **Hot plugging: enables 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



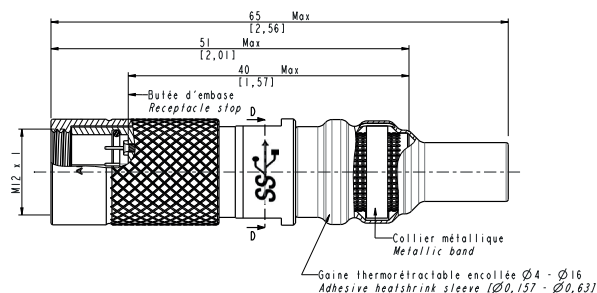
Railway

Overall dimension



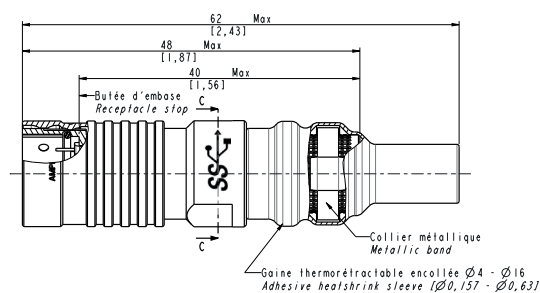
Plug with banding platform

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



Thread version

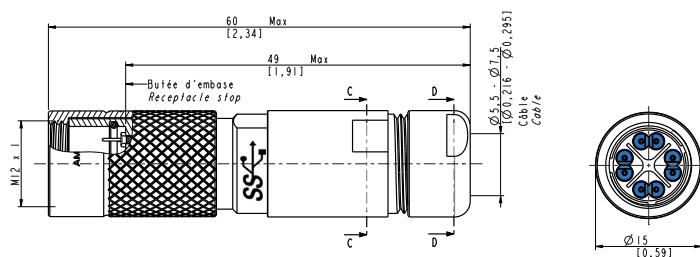
Part number type: **UCOM-USB3 PP X X B**



Push-pull version

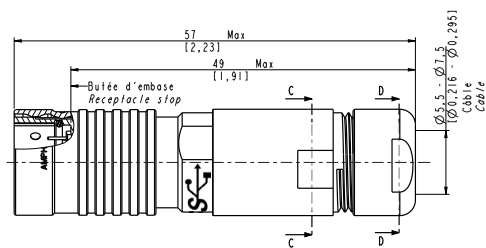
Plug with cable gland backshell

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



Thread version

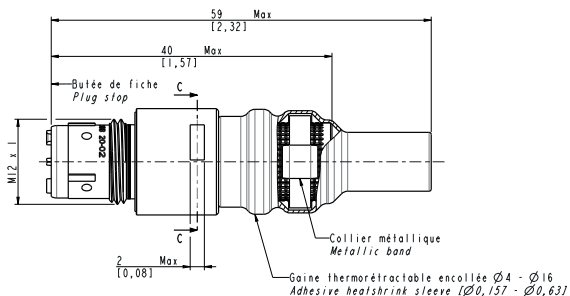
Part number type: **UCOM-USB3 PP X X GA**



Push-pull version

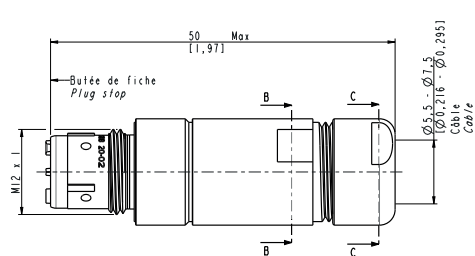
In-line receptacle

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



Banding platform

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



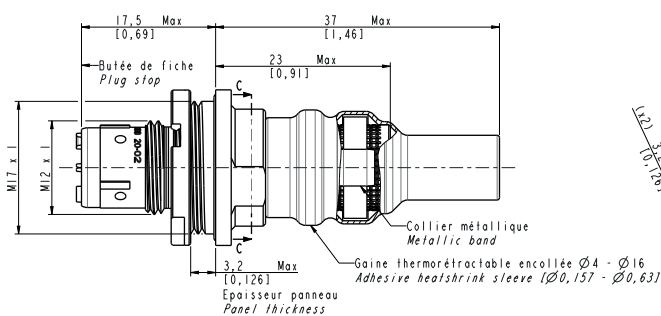
Cable gland backshell

Overall dimension



Panel mount receptacle with banding platform

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

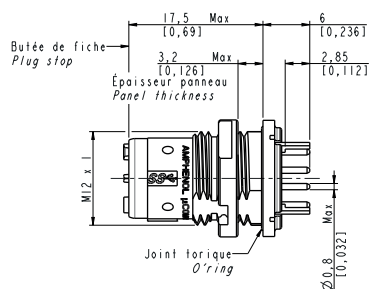


Panel drilling

PCB receptacle for printed circuit board

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

Tinned, tin - silver (lead free "LF")



Panel drilling

Accessories

CAPS for receptacles

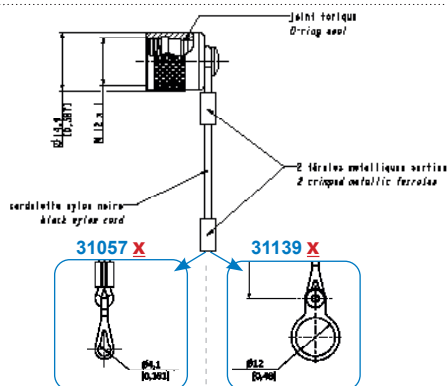
IP68 metallic cap

X to be replaced by

B for Black electrophoresis plating

G for Olive drab cadmium plating

U for Unplated brass



IP68 metallic cap with metallic tie on panel OR IP68 metallic cap with a Ø12 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

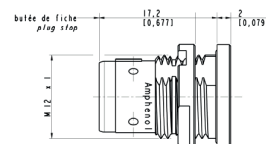
Cap in neoprene

Part number: **31093**



Dummy female receptacle

Part number: **31131 X**



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**

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

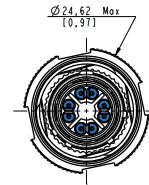
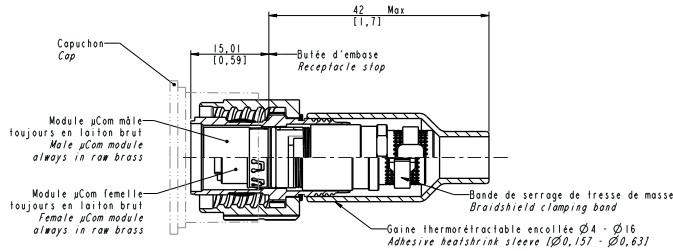
TVμCom-USB3.2 Gen1

Overall dimension



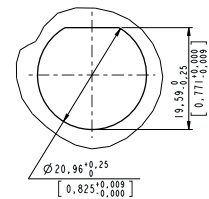
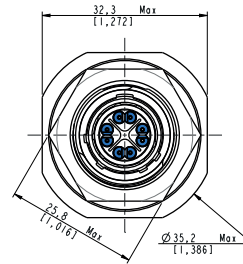
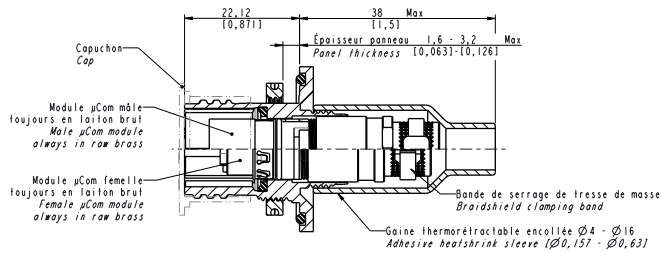
Plug with banding platform

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



Jam nut receptacle with banding platform

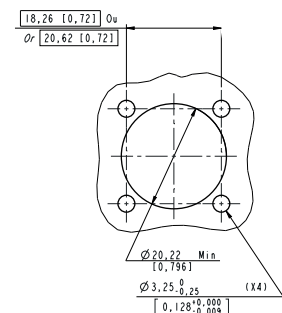
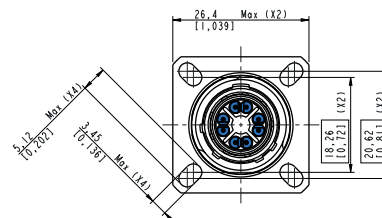
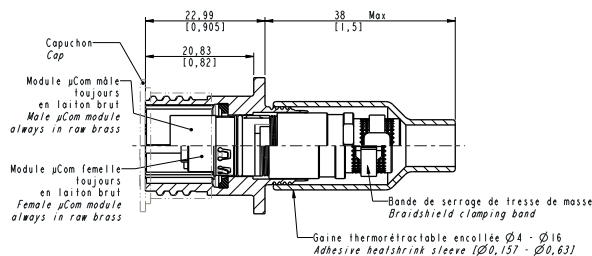
Part number type: **TV07 UCOM-USB3 X X -11 X X**



Panel drilling

Square flange receptacle with banding platform

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



Panel drilling

Overall dimension



Stand off Reduced flange - Jam nut receptacle for PCB

Module μ Com femelle
toujours
en laiton brut
Female μ Com module
always in raw brass

Dimensions:
 $4 \pm 0,2$
 $0,15 \pm 0,007$
 $0,006$
 $(\pm 0,006)$

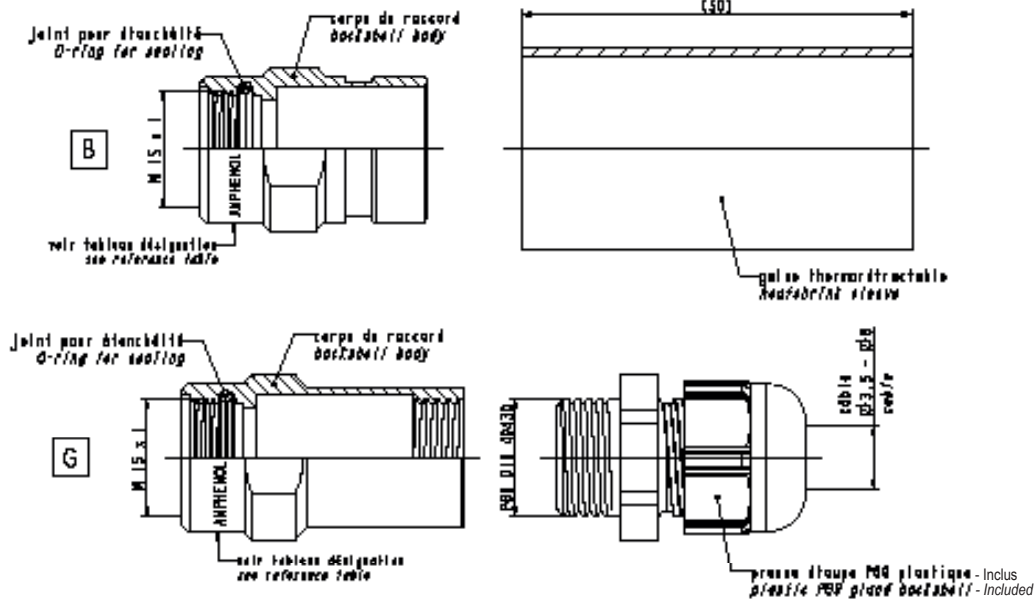
Max

[illegible]

Amphenol SOCAPEX

Accessories

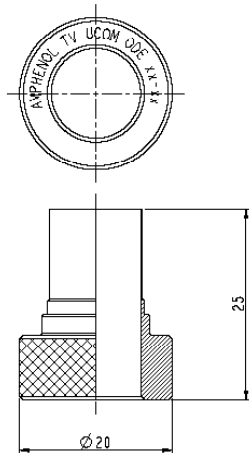
Special Backshells



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

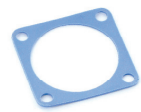
Removal tool

Part number: **TV UCOM ODE**



Panel Gasket for TVP00

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



Spares

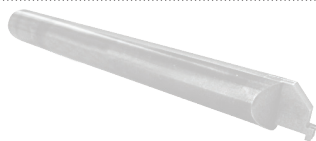
Crimp Pin (10 pcs)
Part number: **31537**



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).

TVμCom-USB3.2 Gen1

Accessories

Description

Silicone protective caps against dust and water.

Main features

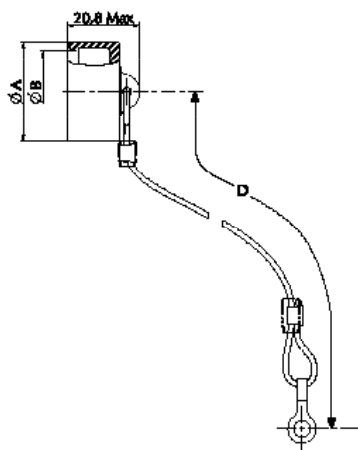
- Compatible with Jam nut and Square flange receptacles
- IP67 (1m, 1 hour sealing)
- Protection against dust and water
- Silicone 200°C
- Nylon cord
- No noise (rubber material)



Overall dimensions

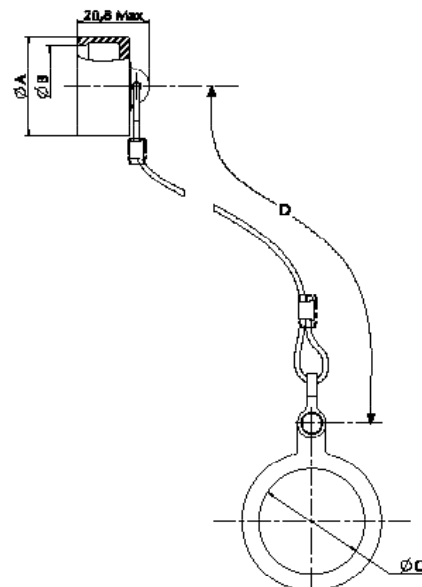
For Square flange receptacle

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 |

TVμCom-USB3.2 Gen1

Accessories

Description

The largest range of protective caps with IP68 protection level.

Main features

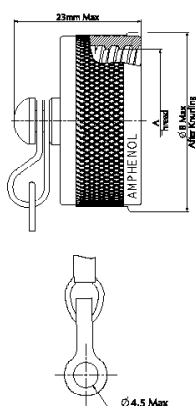
- Compatible with Plugs, Jam nut (Standard and Reduced flange) and Square flange receptacles
- IP68 (permanent sealing)
- Protection again dust, water and moisture
- EMI function
- Nylon cord, stainless steel rope or metallic chain



Overall dimensions

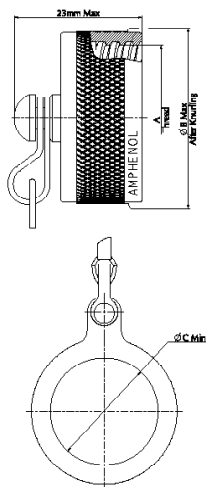
For Square flange receptacle

Part number type : **BEC X TV X 11**



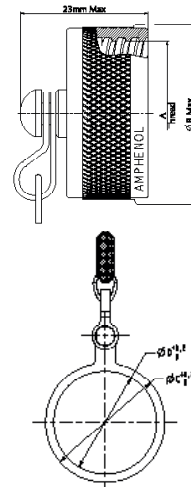
For Jam nut receptacle

Part number type : **BER X TV X 11**



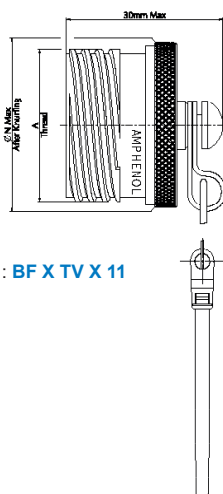
For Jam nut Reduced flange receptacle

Part number type : **BER X TV X 11F057**

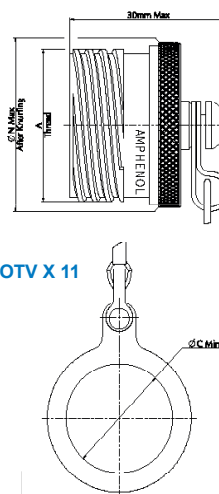


For Plugs

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 |

TVμCom-USB3.2 Gen1

Accessories

Description

High end protection with metallic self-closing function.

Main features

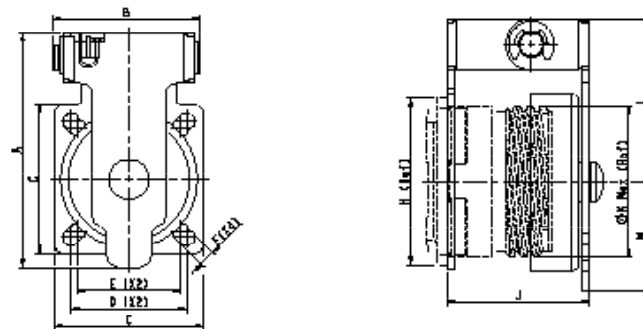
- **Compatible with Square flange receptacles**
- Material: Aluminum
- Platings: Olive drab cadmium, Black zinc nickel, Electroless nickel
- IP67 (1m, 1 hour sealing)
- Protection against dust, water and moisture
- EMI function
- Fast self-closing function
- Space and weight saving: no need for Dummy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

HIGH RELIABILITY USB3.2 Gen1 CORDSETS

Description

This USB3.2 Gen1 cable is specifically designed for fixed or portable military or industrial application.



Design

| | | |
|------------------------------|------------|--|
| USB3.2 Gen1 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 Pair 2: Blue and yellow |
| | 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

| | | | |
|------------------------------|-----------------------|----------------|-----------------|
| USB3.2 Gen1 2 X Data Pair | Test voltage | 500 V | |
| | Impedance | 90±7% Ohm | |
| | Attenuation (dB/100m) | 625 MHz – 10 | 5 000 MHz – 36 |
| | | 1 250 MHz – 15 | 7 500 MHz – 47 |
| | | 2 500 MHz – 25 | |
| 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 | 48 MHz – 27,0 |
| | | 4 MHz – 7,8 | 96 MHz – 38,0 |
| | | 8 MHz – 11,4 | 200 MHz – 64,0 |
| | | 12 MHz – 13,4 | 400 MHz – 116,0 |
| | | 24 MHz – 19,0 | |
| Conductor resistance | ≤ 85 Ohm/km | | |
| Insulation resistance | ≥ 200 MOhm*km | | |
| Power Wire | Operating voltage | ≤ 1 000 V | |
| | Test voltage | 500 V | |

Other characteristics

Halogen Free Flame Retardant

Oil resistance 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

UCOM-USB3.2 Gen1 & TVUCOM-USB3.2 Gen1

How to order UCOM- USB3.2 Gen1

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

| 5. Backshell type (avoid for PCB receptacle) | |
|--|------------------|
| B | Banding platform |
| GA | Gland backshell |

How to order TVUCOM- USB3.2 Gen1

| 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 | Aluminium shell | Olive Drab Cadmium plating |
| F | | 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), tinned, tin - silver (lead free "LF") |

✓: RoHS compliant

UCOM-USB3.2 Gen1 & TVUCOM-USB3.2 Gen1

How to order - Special Backshells

| 1. | 2. | 3. |
|-------------------------------|----------------------------------|-----------------------------------|
| Series | Shell material and finish | Backshell type |
| TVUCOM | W | B |
| 1. Series | | 3. Contact gender |
| TVUCOM | Backshell | B Backshell for heatshrink sleeve |
| | | G Backshell for PG gland |
| 2. Shells material and finish | | |
| W | Olive Drab Cadmium plating | |
| F | Aluminium shell Nickel plating ✓ | |
| ZN | Black Zinc Nickel ✓ | |
| B | Marine bronze shell ✓ | |

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 | | 3. Wire type | |
| RC | Rubber caps | N | Nylon cord |
| 2. Protection cap type | | 4. Shell size | |
| 00 | For square flange receptacle | 11 | Shells size 11 |
| 07 | For jam nut receptacle | | |

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 | | | | 5. Material and finish | | |
| B | Cap | | | 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) ✓ | |
| 2. Protection cap type | | | | 6. Corresponding connector shell size | | |
| EC | For square flange receptacle | | | 11 | Shells size 11 | |
| ER | For jam nut receptacle | | | | | |
| F | For plug | | | | | |
| 3. Wire type | | | | 7. Deviation (only for Jam nut Reduced flange receptacle) | | |
| - | Blank for metallic chain | | | F057 | For Jam nut Reduced flange receptacle | |
| N | Nylon cord | | | | | |
| R | Jacketed stainless steel rope | | | | | |
| RO | Jacketed stainless steel rope with washer end (only for plug) | | | | | |
| 4. Connector type | | | | | | |
| | | | TV Cap | | | |

✓: RoHS compliant



NOTES

Handwriting practice area with 20 horizontal dotted lines.

UCOM-USB3.2 Gen1 & TVUCOM-USB3.2 Gen1

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 | 4. Shell size 11 Shells size 11 |
| 2. Protection cap type - Blank for square flange receptacle | 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) ✓ |
| 3. Self closing type Metallic Self-Closing Caps | |

How to order HIGH RELIABILITY USB3.2 Gen1 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 | 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 |
| 2. Shell type AA Cordset with overmolded 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. | |
| | 5. Mandatory PU HFFR Halogen Free Flame Retardant |

How to order HIGH RELIABILITY USB3.2 Gen1 CABLE

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