

# 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



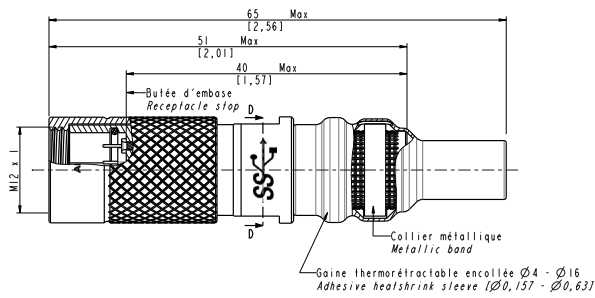
Railway

## Overall dimension



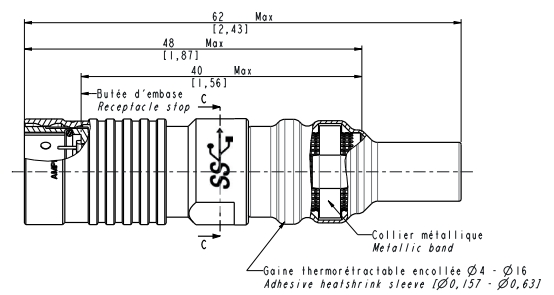
### Plug with banding platform

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



Thread version

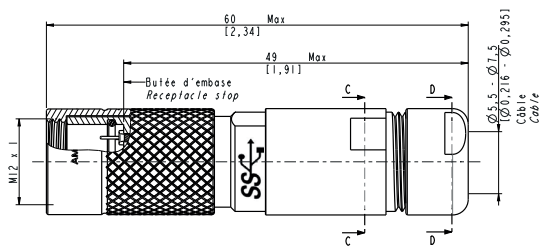
Part number type: **UCOM-USB3 P P X X B**



Push-pull version

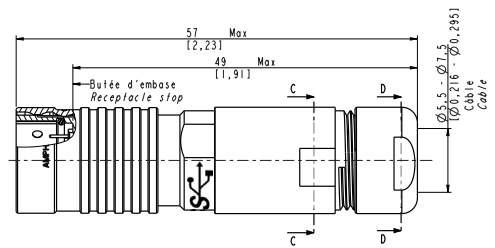
### Plug with cable gland backshell

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



Thread version

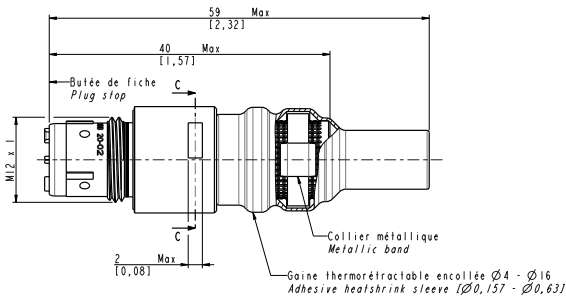
Part number type: **UCOM-USB3 P P X X GA**



Push-pull version

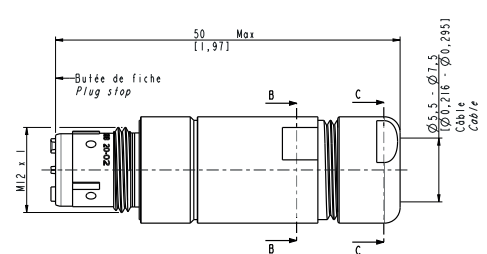
### In-line receptacle

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



Banding platform

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



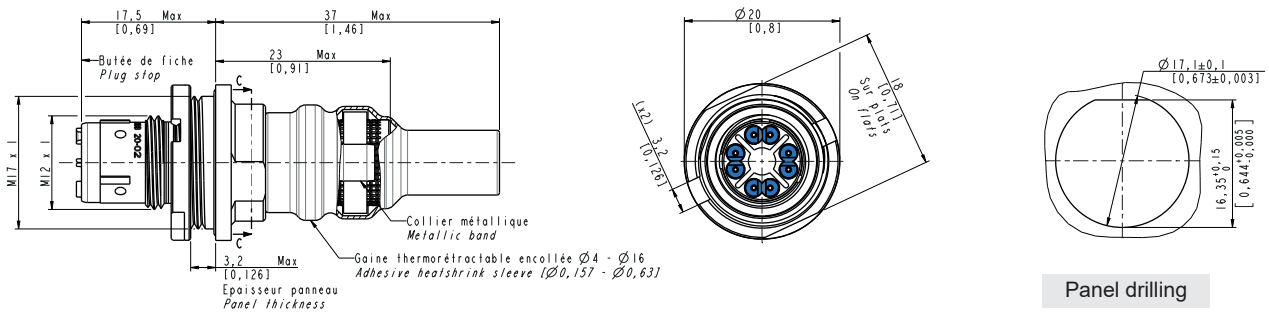
Cable gland backshell

## Overall dimension



### Panel mount receptacle with banding platform

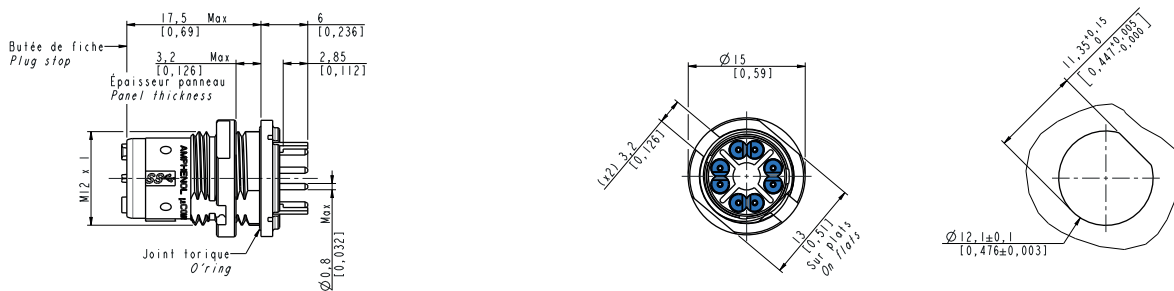
Part number type: **UCOM-USB3 R X X**



Panel drilling

### PCB receptacle for printed circuit board

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



Panel drilling

## Accessories

### CAPS for receptacles

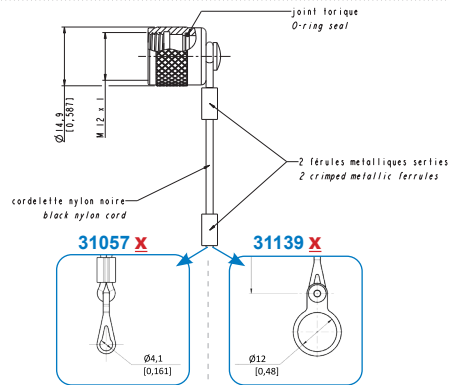
IP68 metallic cap

**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

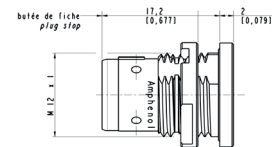
Cap in neoprene

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**

### 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).

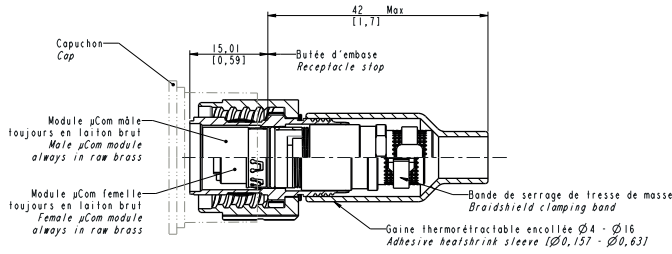
# TVμCom-USB3.2 Gen1

## Overall dimension



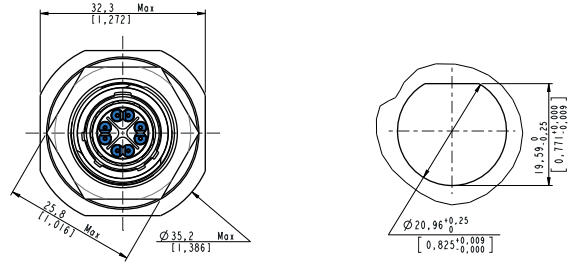
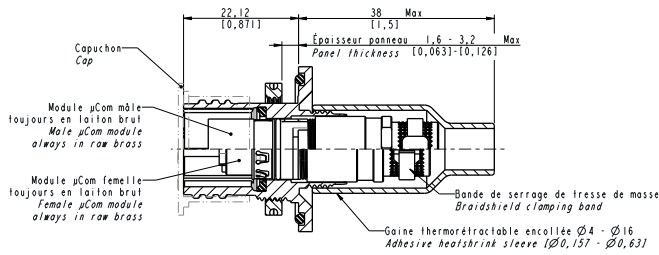
### Plug with banding platform

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



### Jam nut receptacle with banding platform

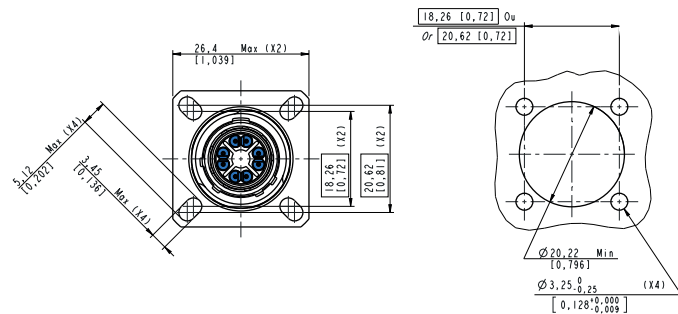
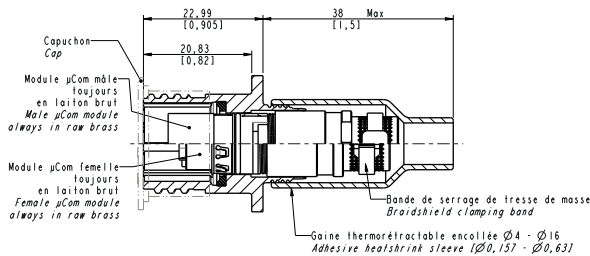
Part number type: **TV07 UCOM-USB3 X X -11 X X**



Panel drilling

### Square flange receptacle with banding platform

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



Panel drilling

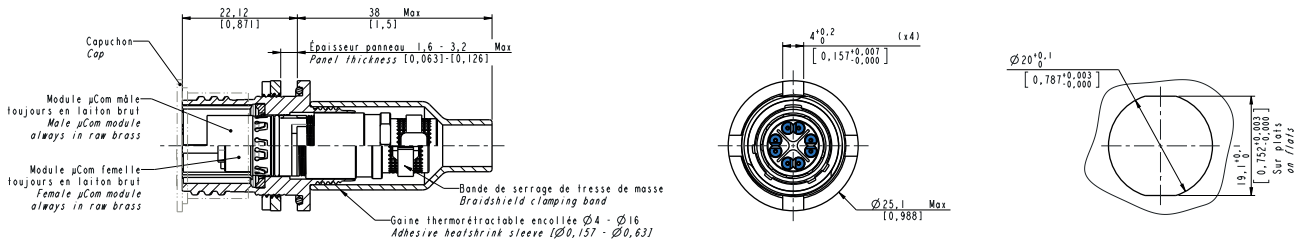
# TVμCom-USB3.2 Gen1

## Overall dimension



### Reduced flange - Jam nut receptacle with banding platform

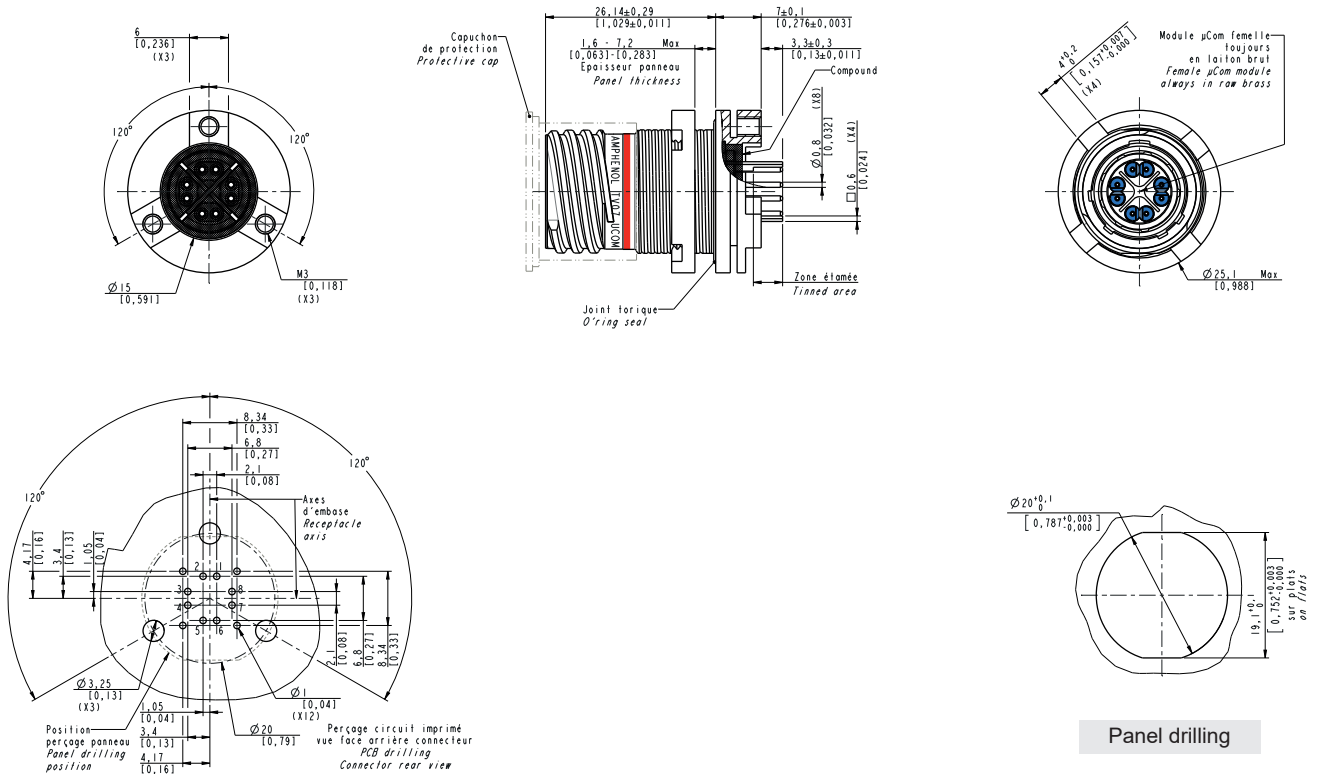
Part number type: **TV07 UCOM-USB3 X X -11 X X F312**



Panel drilling

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

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



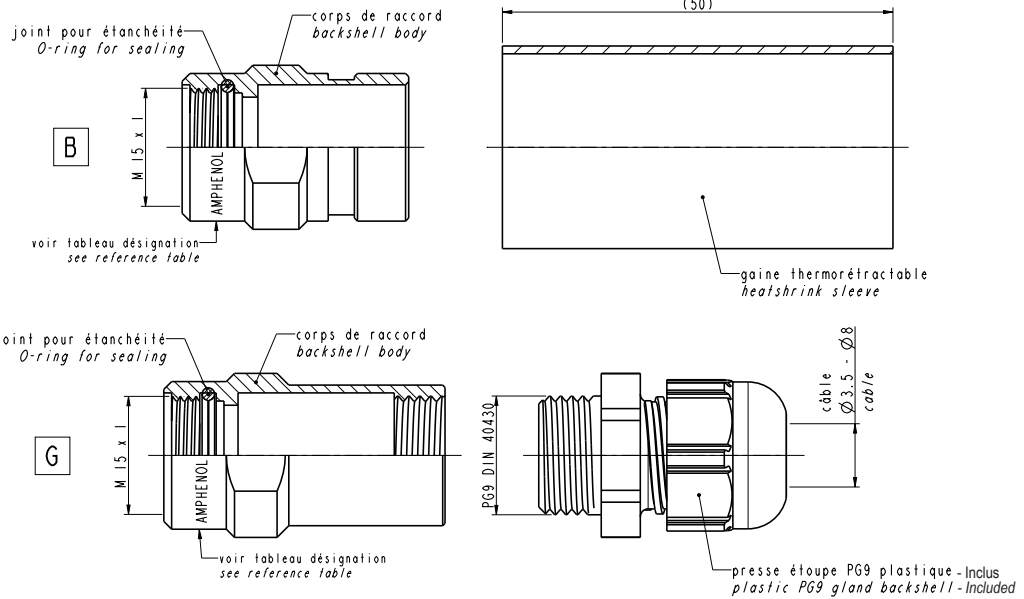
PCB drilling

Panel drilling

## Accessories



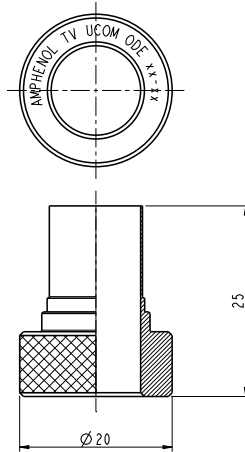
### Special Backshells



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

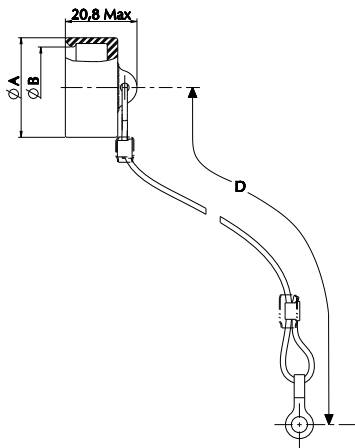
- Compatible with Jam nut and Square flange receptacles
- IP67 (1m, 1 hour sealing)
- Protection against dust and water
- Silicone 200°C
- Nylon cord
- No noise (rubber material)



### Overall dimensions

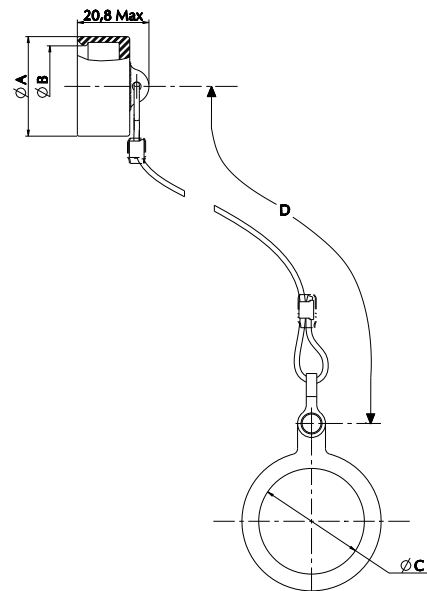
#### For Square flange receptacle

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

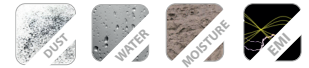
### Description

The largest range of protective caps with IP68 protection level.



### Main features

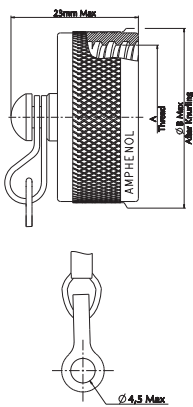
- Compatible with Plugs, Jam nut (Standard and Reduced Flange) and Square Flange receptacles
- IP 68 (permanent sealing)
- Protection against dust, water and moisture
- EMI function
- Nylon cord, stainless steel rope or metallic chain



### Overall dimensions

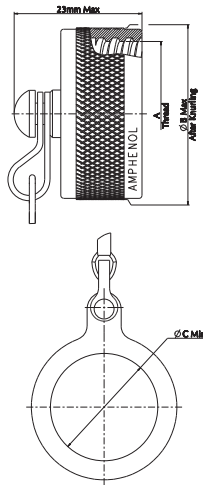
#### For Square flange receptacle

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



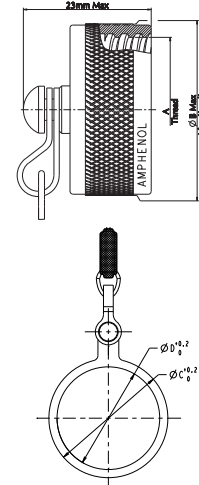
#### For Jam nut receptacle

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



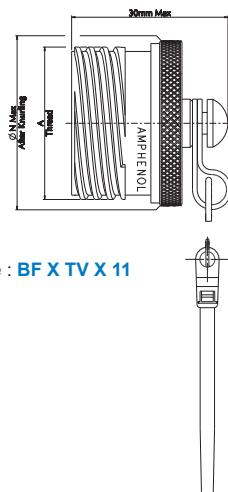
#### For Jam nut Reduced flange receptacle

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

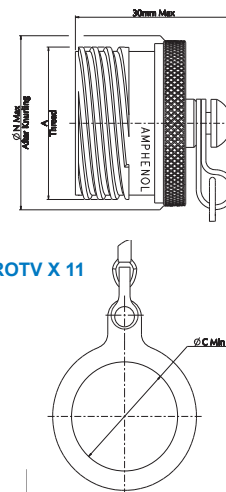


#### For Plugs

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
<b>BEC/BER for receptacle</b>		127 (+13,-7)	
<b>BF for plug</b>		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

# TV $\mu$ Com-USB3.2 Gen1

## Accessories

## Description

High end protection with metallic self-closing function.

## Main features

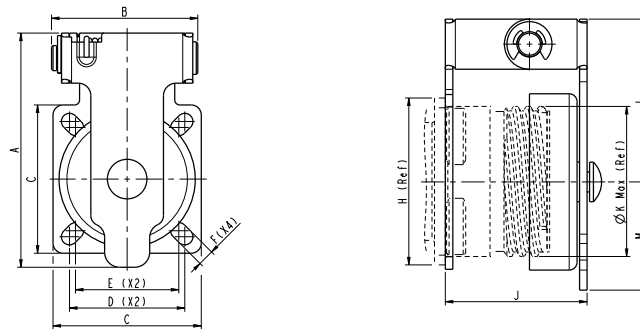
- Compatible with Square flange receptacles
- Material: Aluminum
- Platings: Olive drab cadmium, Black zinc nickel, Electroless nickel and Black electrophoresis
- IP67 (1m, 1 hour sealing)
- Protection against dust, water and moisture
- EMI function
- Fast self-closing function
- Space and weight saving: 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

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

## Electrical characteristics at 20°C

USB3.2 Gen1 2 X Data Pair	<b>Test voltage</b>	500 V		
	<b>Impedance</b>	90±7% Ohm		
	<b>Attenuation (dB/100m)</b>	625 MHz – 10	5 000 MHz – 36	
		1 250 MHz – 15	7 500 MHz – 47	
		2 500 MHz – 25		
<b>Outer screen resistance</b>	≤ 15 Ohm/km			
USB2.0 Data Pair	<b>Test voltage</b>	500 V		
	<b>Impedance</b>	90±15% Ohm		
	<b>Attenuation (dB/100m)</b>	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				
Power Wire	<b>Conductor resistance</b>	≤ 85 Ohm/km		
	<b>Insulation resistance</b>	≥ 200 MOhm*km		
	<b>Operating voltage</b>	≤ 1 000 V		
	<b>Test voltage</b>	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)
<b>UCOM-USB3</b>	<b>PT</b>	<b>C</b>	<b>B</b>	<b>B</b>

1. Series	
<b>UCOM-USB3</b>	µcom for USB3.0

2. Shells type		
<b>PT</b>	Plug	Thread version
<b>PP</b>		Push-pull version
<b>L</b>	In line receptacle	
<b>R</b>	Panel mount receptacle	
<b>RP</b>	PCB receptacle for printed circuit board	

3. Contact type (avoid for RP shell type)	
<b>C</b>	Crimp version
<b>S</b>	Solder version

4. Shell material & finish		
<b>B</b>		Black Nickel ✓
<b>G</b>	Brass shell	Olive drab cadmium
<b>U</b>		Unplated brass ✓

5. Backshell type (avoid for receptacle)	
<b>B</b>	Banding platform
<b>GA</b>	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)
<b>TV06</b>	<b>UCOM-USB3</b>	<b>C</b>	<b>W</b>	<b>11</b>	<b>P</b>	-	-

1. Shells type		
<b>TV06</b>	Plug	
<b>TV07</b>	Receptacle	Jam nut
<b>TVP00</b>		Square flange

2. Series	
<b>UCOM-USB3</b>	µcom for USB3.0

3. Contact type (avoid for RP shell type)			
<b>C</b>	Crimp version		
<b>S</b>	Solder version		
<b>CI</b>	PCB contact (only with TV07 shell type and F059 deviation)		

4. Shells material and finish		
<b>W</b>		Olive Drab Cadmium plating
<b>F</b>	Aluminium shell	Nickel plating ✓
<b>ZN</b>		Black Zinc Nickel ✓
<b>B</b>	Marine bronze shell ✓	
<b>K</b>	Passivated stainless steel ✓	

5. Shell size	
<b>11</b>	Shells size 11

6. Contact gender	
<b>P</b>	Pin contact
<b>S</b>	Socket contact

7. Coding			
	Coding N	<b>C</b>	Coding C
<b>A</b>	Coding A	<b>D</b>	Coding D
<b>B</b>	Coding B	<b>E</b>	Coding E

8. Deviation (only for TV07 shell type)	
<b>F312</b>	Jam nut Reduced flange receptacle with banding platform
<b>F059</b>	Stand off - Jam nut Reduced flange receptacle for PCB (mandatory with CI contact type)

✓: 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

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# NOTES

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# 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

<b>1. Series</b>		<b>4. Shell size</b>	
TV	Metallic Self-Closing Caps	11	Shells size 11
<b>2. Protection cap type</b>		<b>5. Material and finish</b>	
-	Blank for square flange receptacle	W	Olive Drab Cadmium plating on aluminium (175°C)
<b>3. Self closing type</b>		ZN	Black zinc nickel plated on aluminium (175°C) ✓
Metallic Self-Closing Caps		F	Electroless nickel plated on aluminium (200°C) ✓
		B	Black electrophoresis on aluminium (125°C) ✓

## 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

<b>1. Series</b>		<b>4. Length</b>	
USB3	USB3.0 Cordset	050	0.5 m / 1.64 ft
<b>2. Shell type</b>		100	1 m / 3.28 ft
AA	Cordset with overmolded USB type A plug on each end	150	1.50 m / 4.92 ft
<b>3. Wiring (USB3.0 cordset only)</b>		180	1.80 m / 5.91 ft
CROSSED	Crossed wiring	200	2 m / 6.56 ft
STRAIGHT	Straight wiring	250	2.50 m / 8.2 ft
<b>Important note :</b>		300	3 m / 9.84 ft
- Crossed cordset will have a black overmolding while straight cordset will have a blue overmolding.		350	3.50 m / 11.48 ft
- USB3.0 cordset will be out of his specification over 3,00m length.		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
		<b>5. Mandatory</b>	
		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