



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



Naval



Commercial Aerospace



Railway

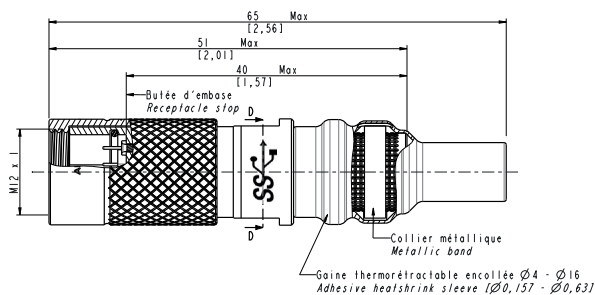
μCom-USB3.2 Gen1

Overall dimension



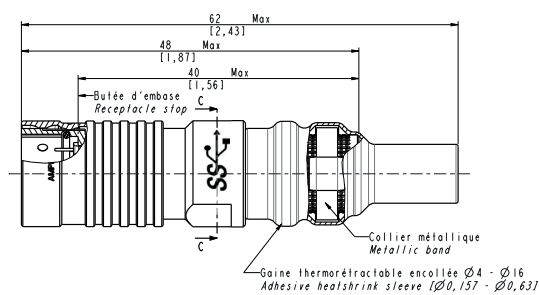
Plug with banding platform

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



Thread version

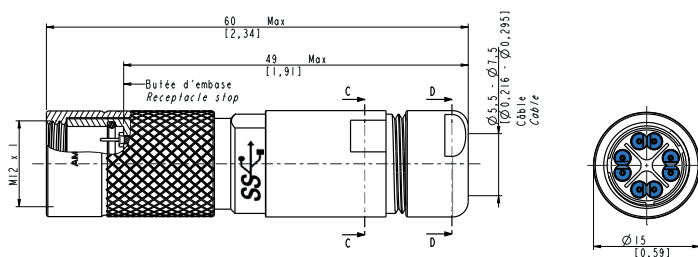
Part number type: **UCOM-USB3 PP X X B**



Push-pull version

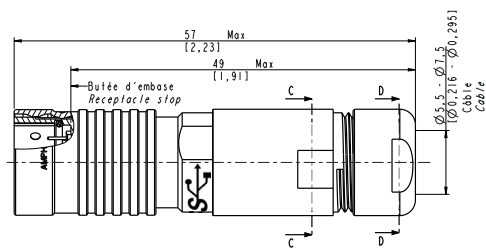
Plug with cable gland backshell

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



Thread version

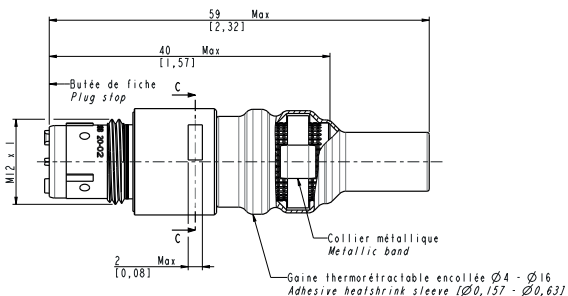
Part number type: **UCOM-USB3 PP X X GA**



Push-pull version

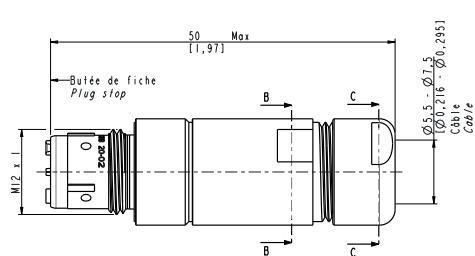
In-line receptacle

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



Banding platform

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



Cable gland backshell

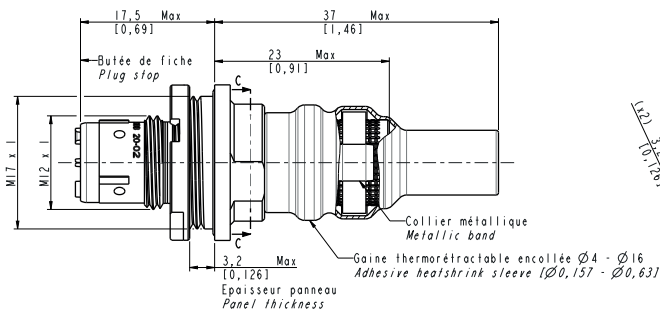
μCom-USB3.2 Gen1

Overall dimension



Panel mount receptacle with banding platform

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

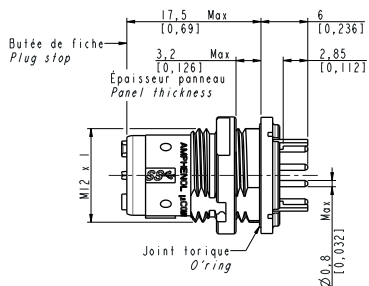


Panel drilling

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

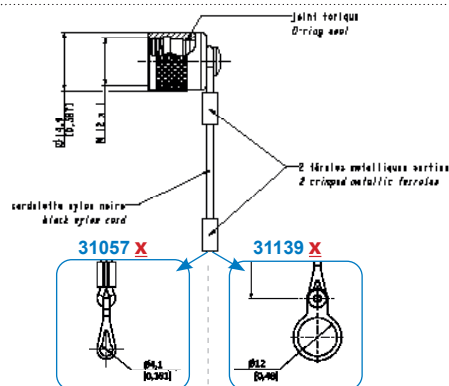
IP68 metallic cap

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 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

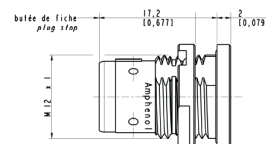
Cap in neoprene

Part number: **31093**



Dummy female receptacle

Part number: **31131 X**



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).

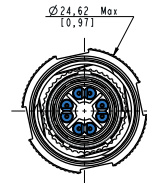
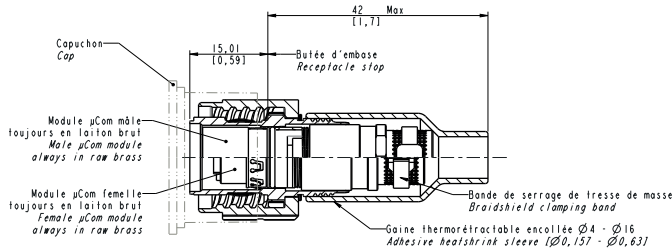
TVμCom-USB3.2 Gen1

Overall dimension



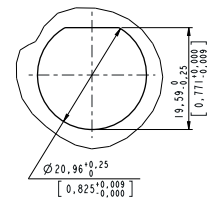
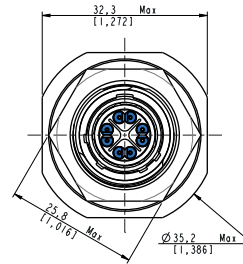
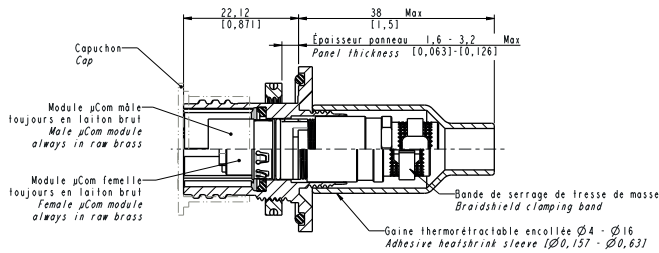
Plug with banding platform

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



Jam nut receptacle with banding platform

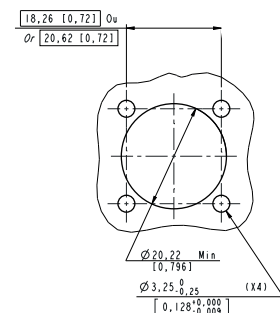
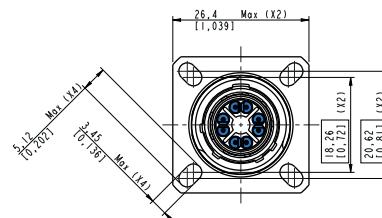
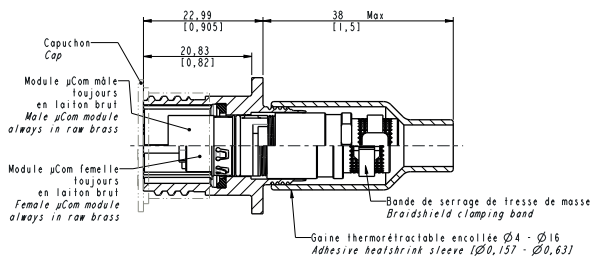
Part number type: **TV07 UCOM-USB3 X X -11 X X**



Panel drilling

Square flange receptacle with banding platform

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



Panel drilling

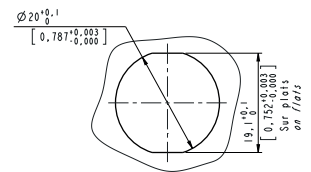
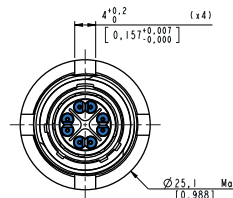
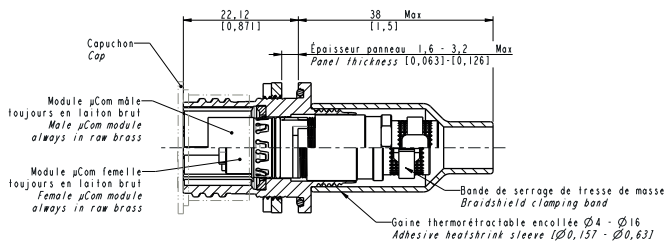
TVμCom-USB3.2 Gen1

Overall dimension



Reduced flange - Jam nut receptacle with banding platform

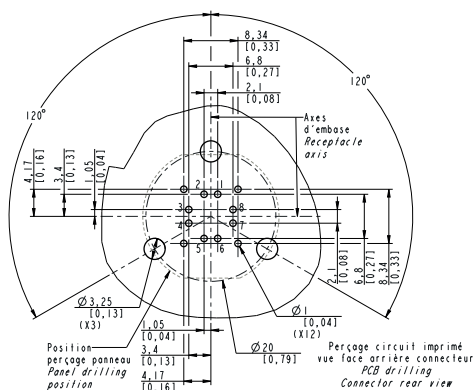
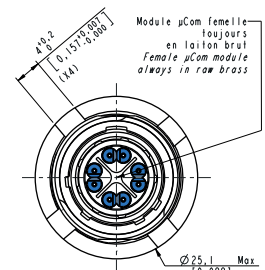
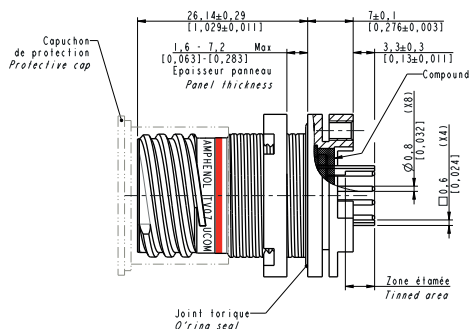
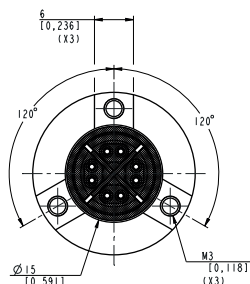
Part number type: **TV07 UCOM-USB3 X X -11 X X F312**



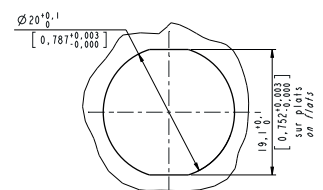
Panel drilling

Stand off Reduced flange - Jam nut receptacle for PCB

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



PCB drilling

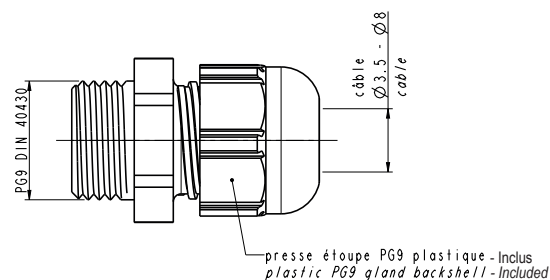
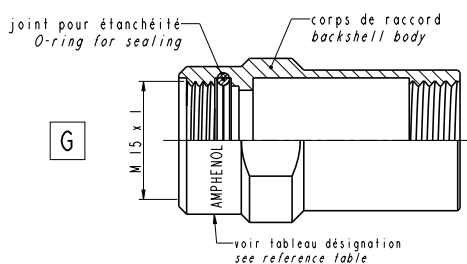
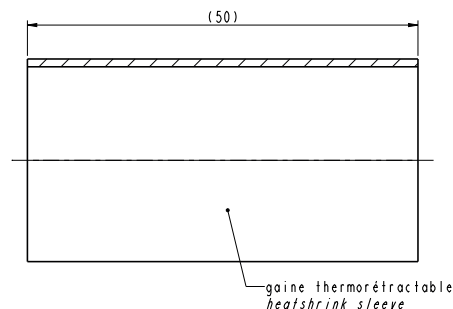
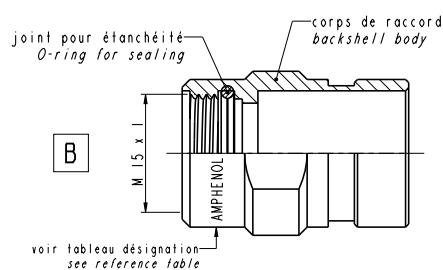


Panel drilling

TVμCom-USB3.2 Gen1

Accessories

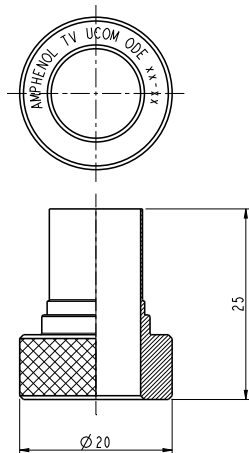
Special Backshells



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

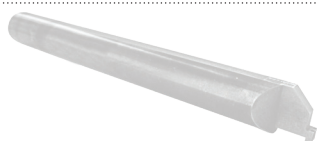
Crimp Pin (10 pcs)
Part number: **31537**



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

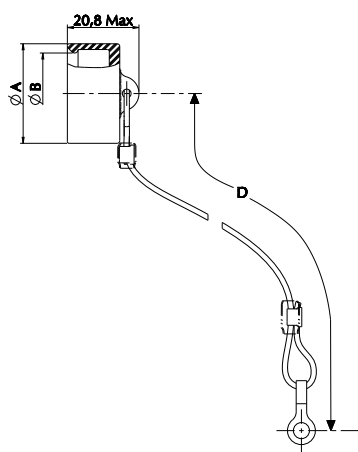
- Compatible with Jam nut and Square flange receptacles
- IP67 (1m, 1 hour sealing)
- Protection against dust and water
- Silicone 200°C
- Nylon cord
- No noise (rubber material)



Overall dimensions

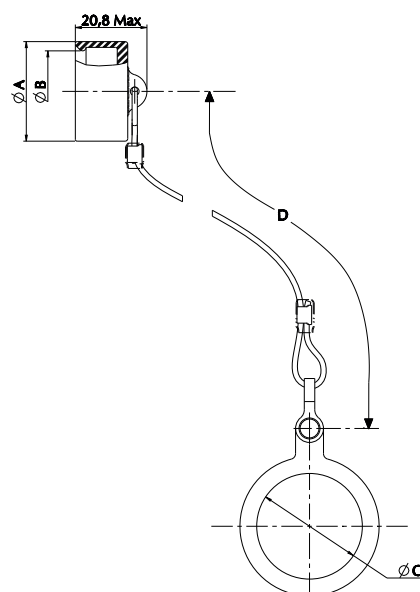
For Square flange receptacle

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

TV μ Com-USB3.2 Gen1

Accessories

Description

The largest range of protective caps with IP68 protection level.

Main features

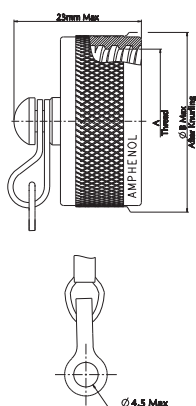
- Compatible with Plugs, Jam nut (Standard and Reduced flange) and Square flange receptacles
- IP68 (permanent sealing)
- Protection against dust, water and moisture
- EMI function
- Nylon cord, stainless steel rope or metallic chain



Overall dimensions

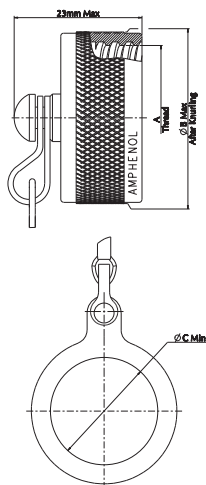
For Square flange receptacle

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



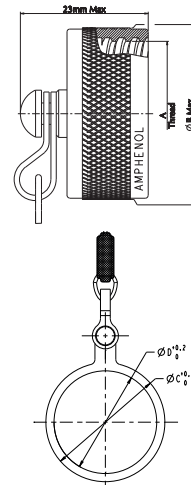
For Jam nut receptacle

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



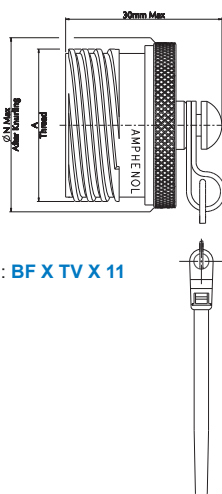
For Jam nut Reduced flange receptacle

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

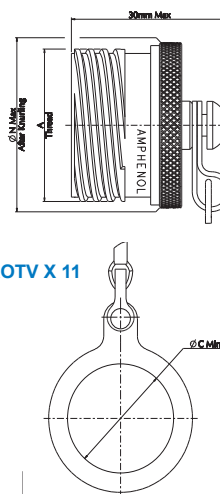


For Plugs

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
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

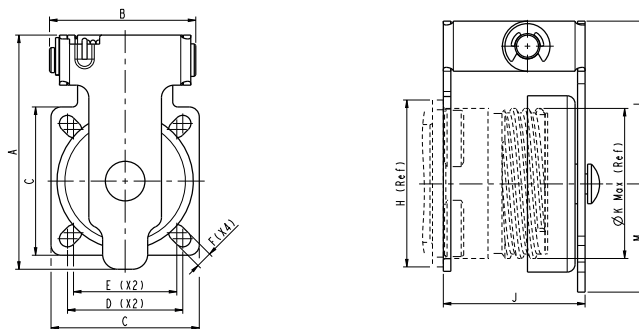
- **Compatible with Square flange receptacles**
- Material: Aluminum
- Platings: Olive drab cadmium, Black zinc nickel, Electroless nickel
- IP67 (1m, 1 hour sealing)
- Protection against dust, water and moisture
- EMI function
- Fast self-closing function
- Space and weight saving: no need for Dummy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

NOTE

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	4. Shell size
TV	11
Metallic Self-Closing Caps	Shells size 11
2. Protection cap type	5. Material and finish
-	W
Blank for square flange receptacle	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	4. Length
USB3	050
USB3.0 Cordset	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	5. Mandatory
AA	PU HFFR
Cordset with overmolded USB type A plug on each end	Halogen Free Flame Retardant
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.

How to order HIGH RELIABILITY USB3.2 Gen1 CABLE

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