Amphenol SOCAPEX

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.**
- **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 ✓
  - 500 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

C4ISR, Battlefield, Ground Vehicles

Navy

Commercial Aerospace

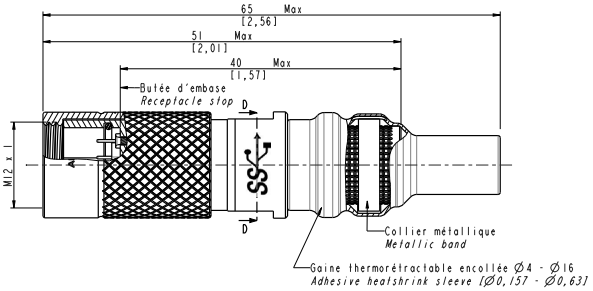
Railway

Overall dimension



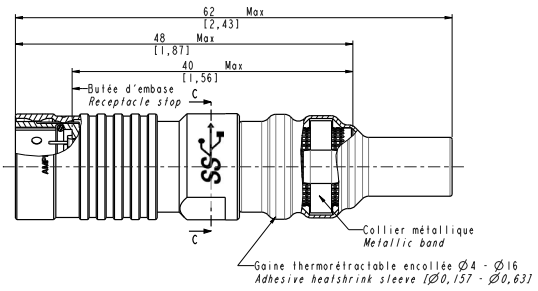
Plug with banding platform

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



Thread version

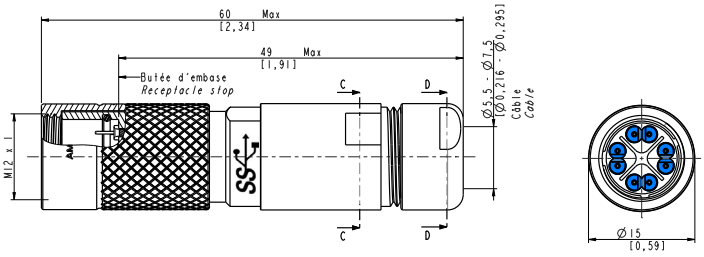
Part number type: **UCOM-USB3 P P X X B**



Push-pull version

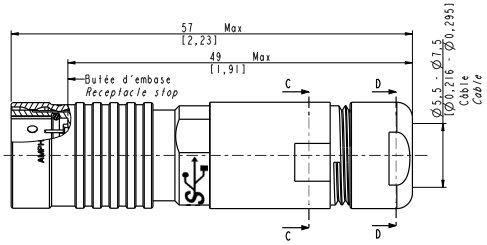
Plug with cable gland backshell

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



Thread version

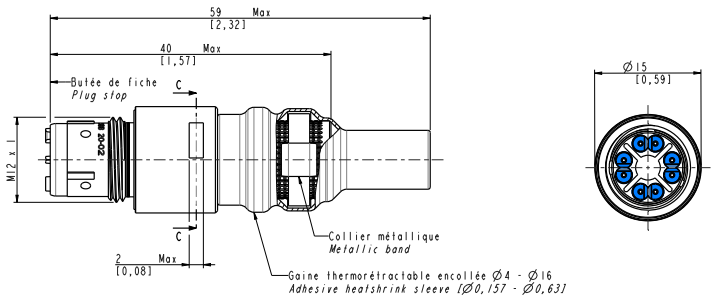
Part number type: **UCOM-USB3 P P X X GA**



Push-pull version

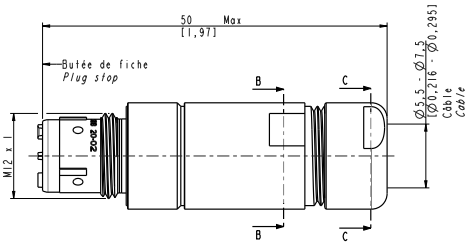
In-line receptacle

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



Banding platform

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



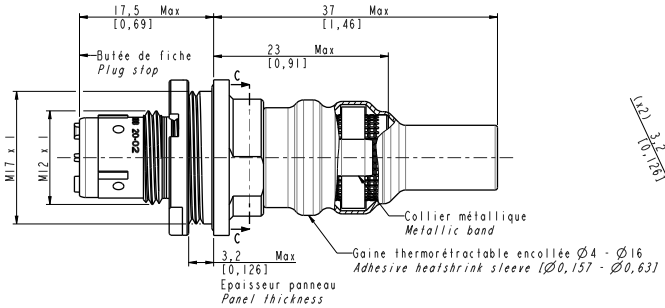
Cable gland backshell

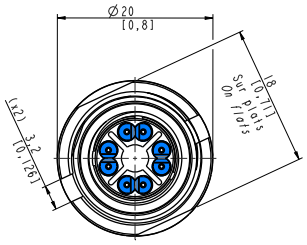


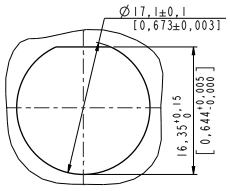
Overall dimension

Panel mount receptacle with banding platform

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



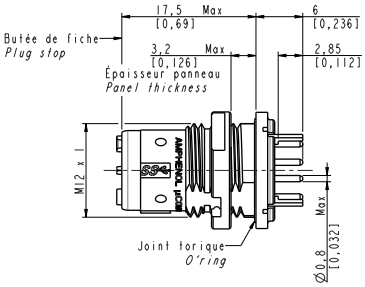


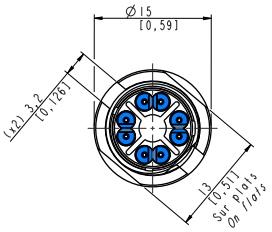


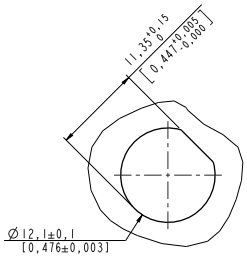
Panel drilling

PCB receptacle for printed circuit board

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







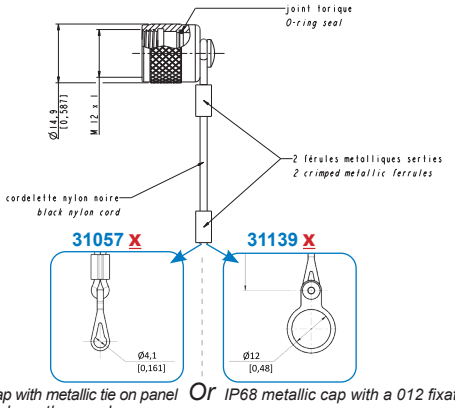
Panel drilling

Accesories

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

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



CAPS for plugs

Cap in neoprene
Part number: **31092**



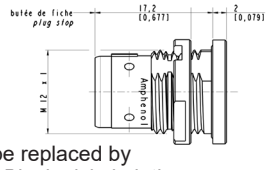
CAPS for in line receptacles

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**

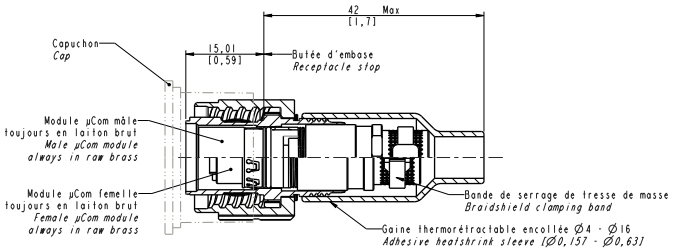
Nota: *the cabling instructions are available upon demand (ref. N00-040190-00).*

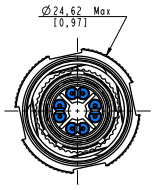
Overall dimension



Plug with banding platform

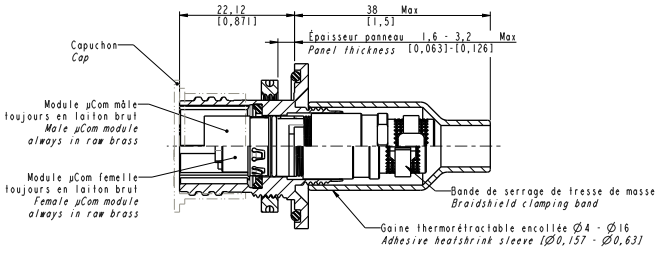
Part number type: **TV06 UCOM-USB3 X X -11 X X**

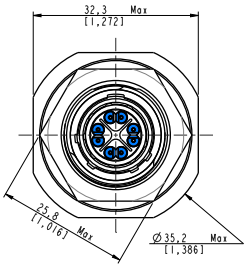


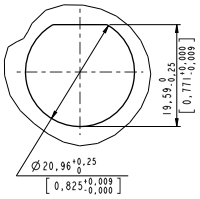


Jam nut receptacle with banding platform

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



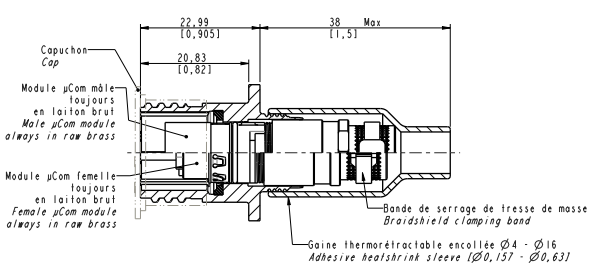


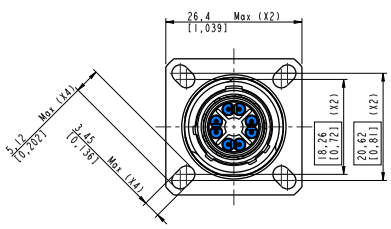


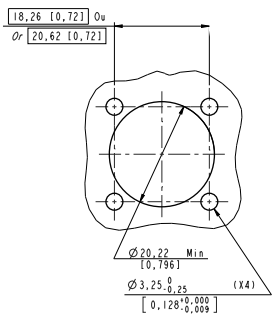
Panel drilling

Square flange receptacle with banding platform

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







Panel drilling

Amphenol SOCAPEX

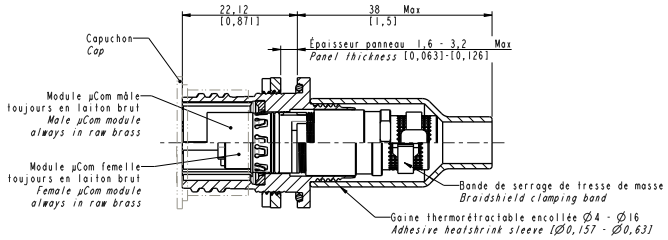
Overall dimension

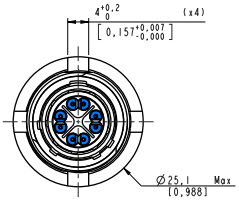


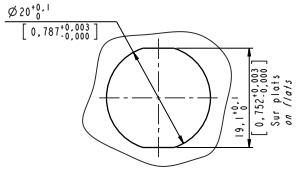


Reduced flange - Jam nut receptacle with banding platform

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



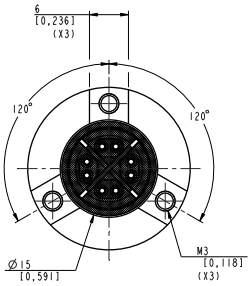


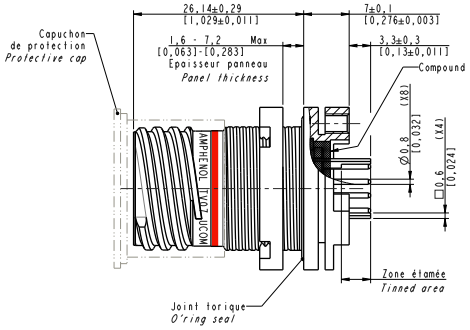


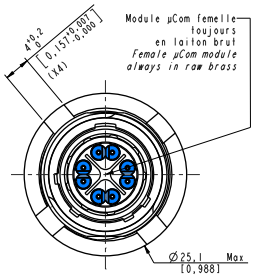
Panel drilling

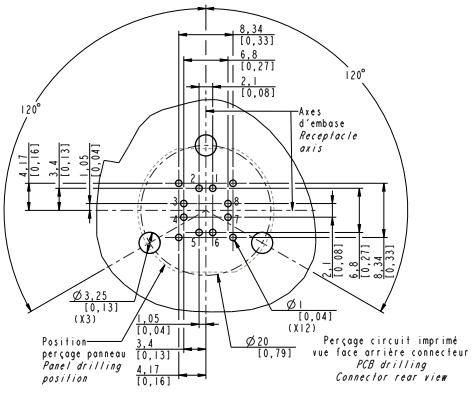
Stand off Reduced flange - Jam nut receptacle for PCB

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

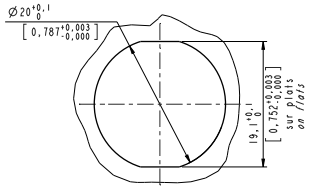








PCB drilling

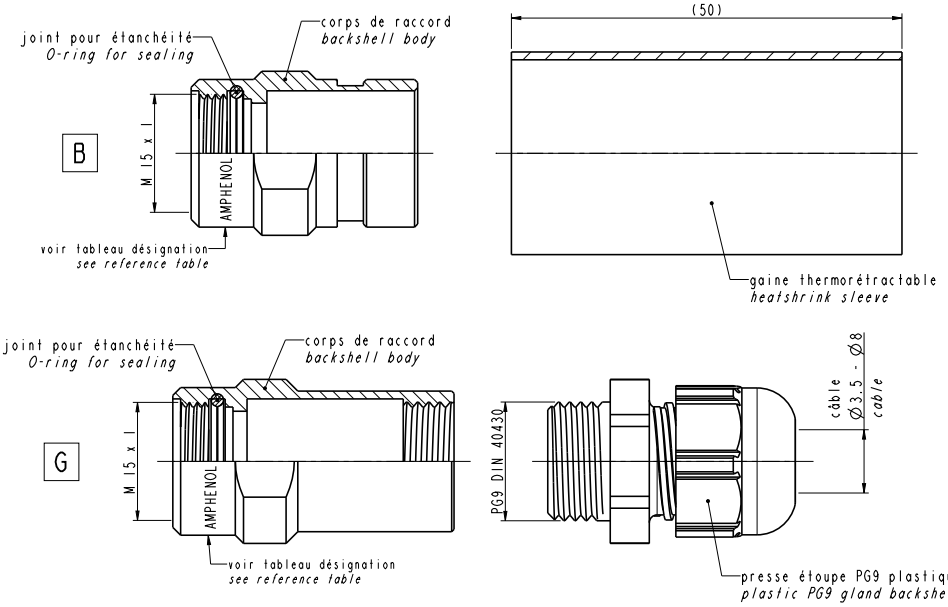


Panel drilling

Accessories



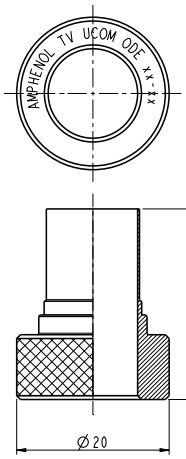
Special Backshells



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

Accessories

Description

Silicone protective caps against dust and water.



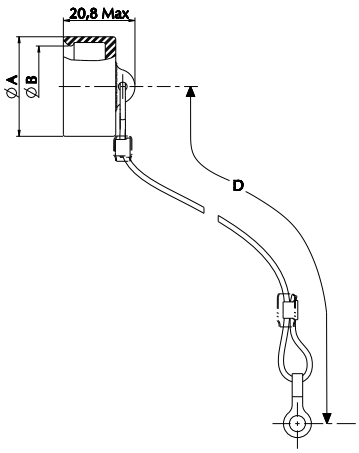
Main features

- **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

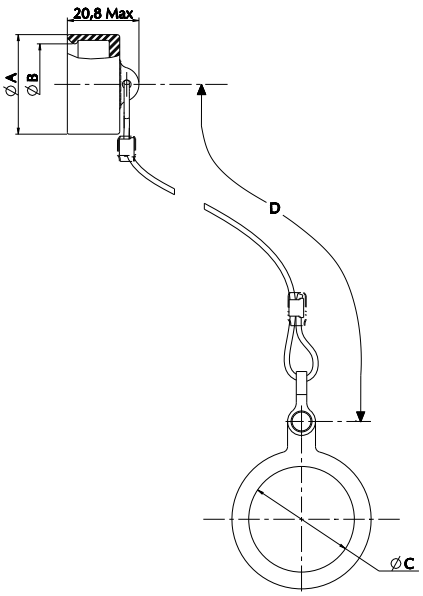
For Square flange receptacle

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

Accessories



Description

The largest range of protective caps with IP68 protection level.

Main features

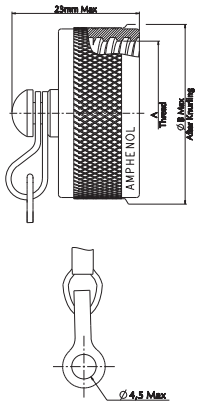
- **Compatible with Plugs, Jam nut (Standard and Reduced Flange) and Square Flange receptacles**
- IP 68 (permanent sealing)
- Protection again dust, water and moisture
- EMI function
- Nylon cord, stainless steel rope or metallic chain



Overall dimensions

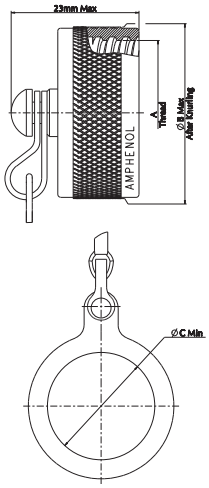
For Square flange receptacle

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



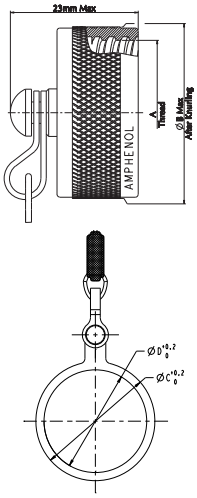
For Jam nut receptacle

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

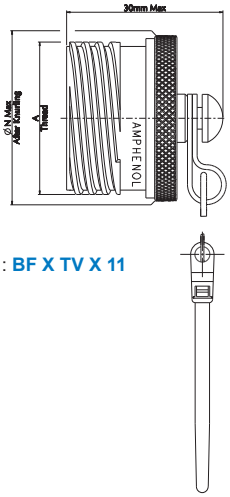


For Jam nut Reduced flange receptacle

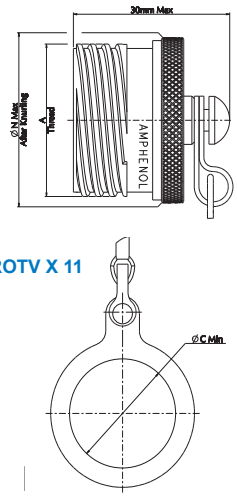
Part number type : **BER X TV X 11F057**



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



Accessories

Description

High end protection with metallic self-closing function.

Main features

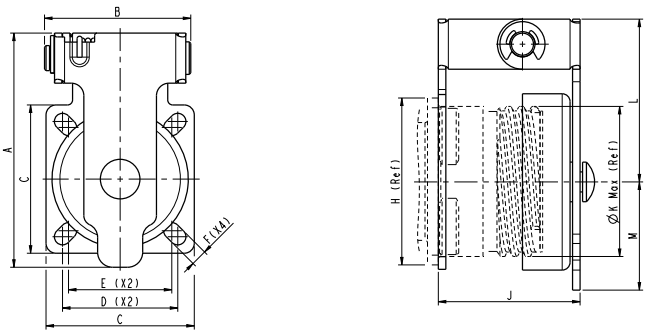


- **Compatible with Square flange receptacles**
- Material: Aluminum
- Platings: Olive drab cadmium, Black zinc nickel, Electroless nickel and Black electrophoresis
- IP67 (1m, 1 hour sealing)
- Protection against dust, water and moisture
- EMI function
- Fast self-closing function
- Space and weight 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 USB3.0 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 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 1 250 MHz – 15 2 500 MHz – 25	5 000 MHz – 36 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 4 MHz – 7,8 8 MHz – 11,4 12 MHz – 13,4 24 MHz – 19,0	48 MHz – 27,0 96 MHz – 38,0 200 MHz – 64,0 400 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

UCOM-USB3 & TVUCOM-USB3

How to order UCOM- USB3

1. Series	2. Shell type	3. Contact type (avoid for RP shell type)	4. Shells material and finish	5. 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 receptacle)

B	Banding platform
GA	Gland backshell

How to order TVUCOM- USB3

1. Shell type	2. Series	3. Contact type	4. Shells material and finish	5. Shell size	6. Contact gender	7. Coding	8. 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)

✓: RoHS compliant

How to order - Special Backshells

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

1. Series

TVUCOM	Backshell

2. Shells material and finish

W	Aluminium shell	Olive Drab Cadmium plating
F		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. Series	2. Protection cap type	3. Wire type	4. 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. Series	2. Protection cap type	3. Wire type	4. Connector type	5. Material and finish	6. Corresponding connector shell size	7. 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

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 :
- To define a crossed or straight USB3.0 cordset, please refer to p.61
- 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

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