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

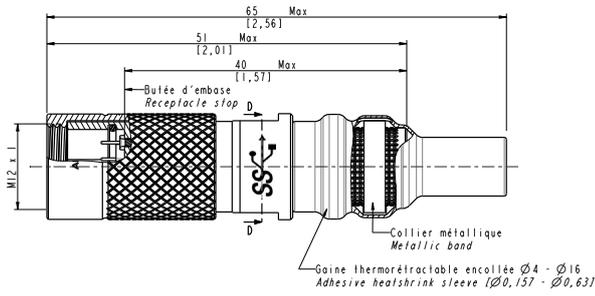C4ISR, Battlefield, Ground Vehicles

Navy

Commercial Aerospace

Railway

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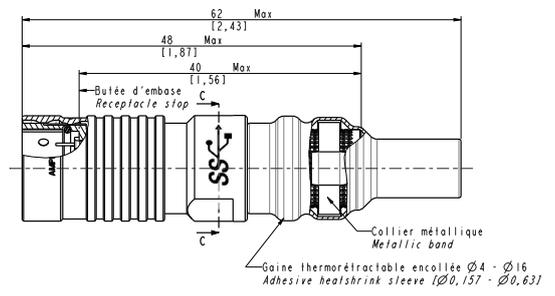**Amphenol SOCAPEX**

µCom-USB3

Overall dimension

Plug with banding platform

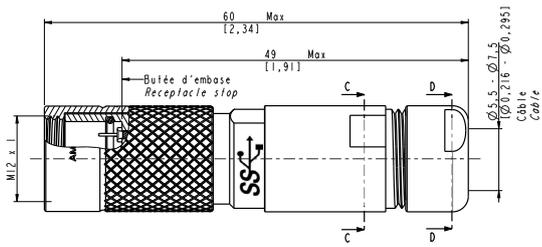Part number type: **UCOM-USB3 P T X X B**

Thread version

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

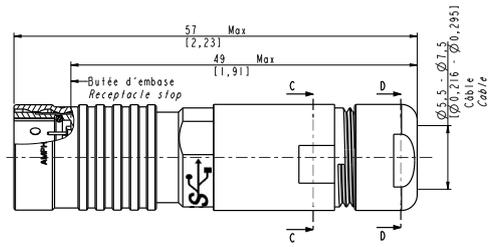

Push-pull version

Plug with cable gland backshell

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

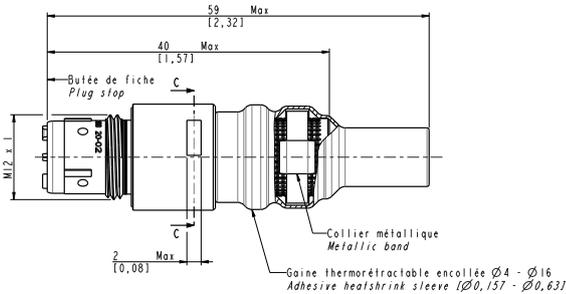Thread version

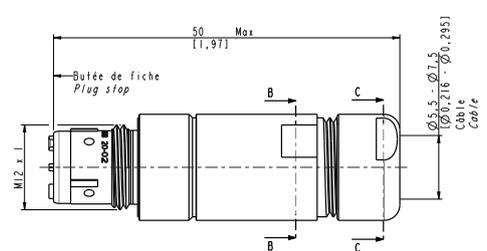Part number type: **UCOM-USB3 P P X X GA**

Push-pull version

In-line receptacle

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

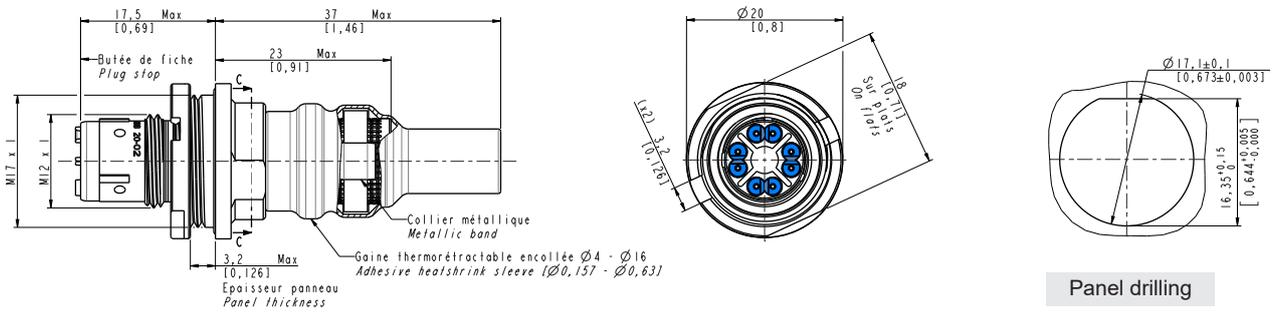Banding platform

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

Cable gland backshell

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µCom-USB3

Overall dimension

Panel mount receptacle with banding platform

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

17,5 Max [0,69]
37 Max [1,46]
23 Max [0,91]
Butée de fiche
Plug stop
M17 x 1
M12 x 1
3,2 Max [0,126]
Épaisseur panneau
Panel thickness
Collier métallique
Metallic band
Gaine thermorétractable encollée Ø4 - Ø16
Adhesive heatshrink sleeve [Ø0,157 - Ø0,63]

Ø20 [0,8]
[0,71]
[18]
Sur plats
On flats
3,2 [0,126]
[x2]

Ø17,1±0,1 [0,673±0,003]
16,35 +0,15 0 [0,644 +0,005 -0,000]

Panel drilling

PCB receptacle for printed circuit board

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

17,5 Max [0,69]
6 [0,236]
3,2 Max [0,126]
2,85 [0,112]
Butée de fiche
Plug stop
Épaisseur panneau
Panel thickness
M12 x 1
Joint torique
O'ring
Ø0,8 [0,032]
Max

Ø15 [0,59]
3,2 [0,126]
[x2]
[13] [0,51]
Sur plats
On flats

11,35 +0,15 0 [0,447 +0,005 -0,000]
Ø12,1±0,1 [0,476±0,003]

Panel drilling

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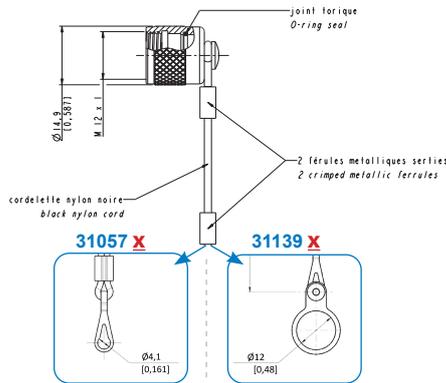Designed by Amphenol Socapex

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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*

joint torique
O-ring seal

2 férules métalliques 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
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
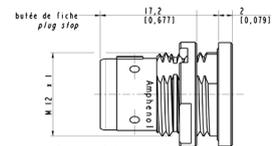
Cap in neoprene
Part number: **31092**

CAPS for in line receptacles

Cap in neoprene
Part number: **31093**

Dummy female receptacle

Part number: **31131 X**

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**

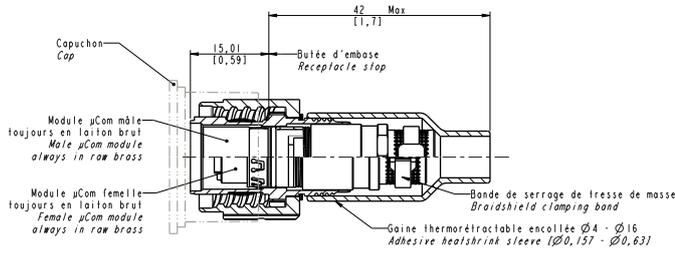*Nota: the cabling instructions are available upon demand (ref. N00-040190-00).*

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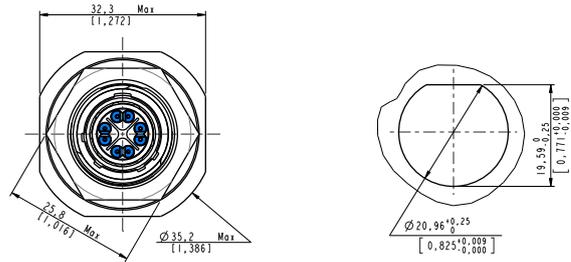
TVµCom-USB3

Overall dimension

Plug with banding platform

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

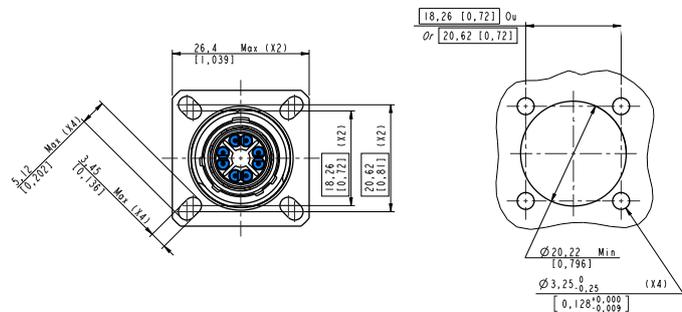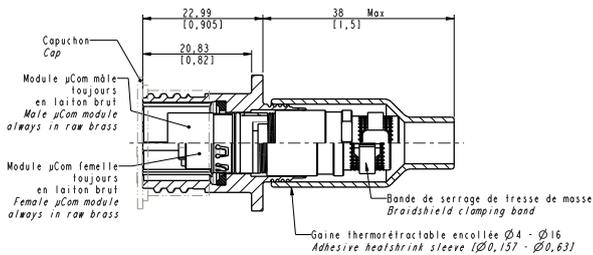### Jam nut receptacle with banding platform

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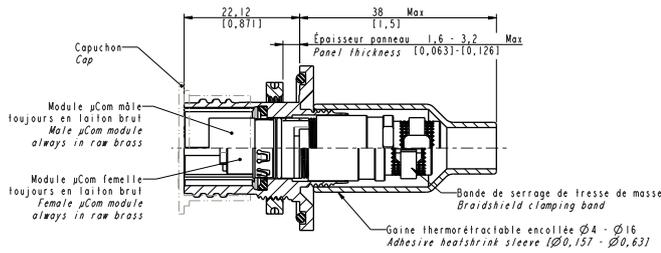
Panel drilling

Square flange receptacle with banding platform

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

Panel drilling

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TVμCom-USB3

Overall dimension

Reduced flange - Jam nut receptacle with banding platform

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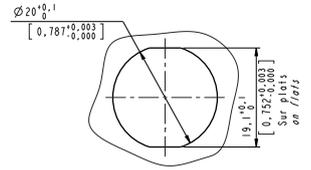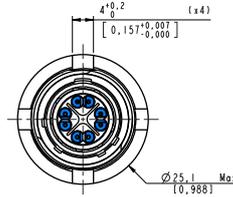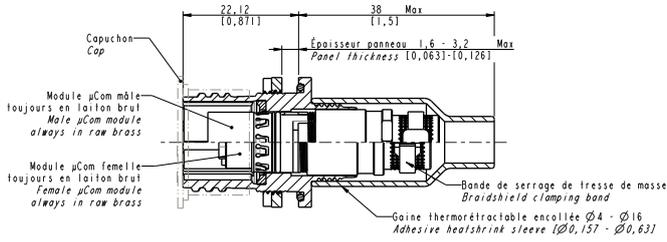
Panel drilling

Stand off Reduced flange - Jam nut receptacle for PCB

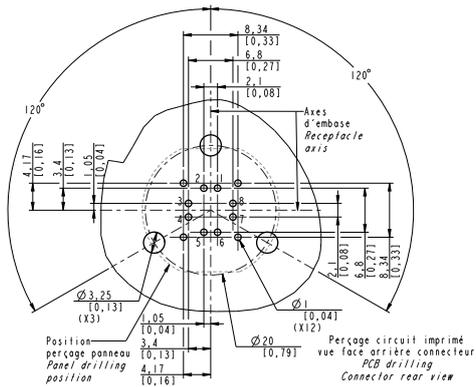Part number type: **TV07 UCOM-USB3 CI X -11 S X F059**

PCB drilling

Panel drilling

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TVµCom-USB3
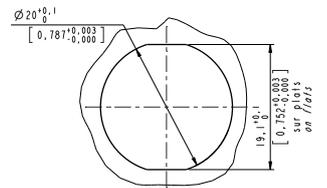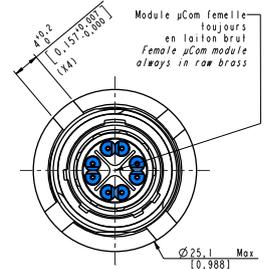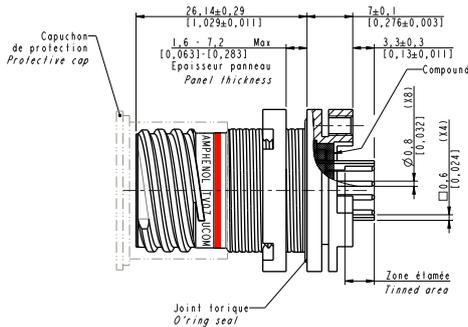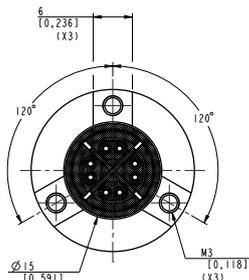
Accessories

Special Backshells

joint pour étanchéité
O-ring for sealing

corps de raccord
backshell body

B

M 15 x 1

AMPHENOL

voir tableau désignation
see reference table

(50)

gaine thermorétractable
heatshrink sleeve

joint pour étanchéité
O-ring for sealing

corps de raccord
backshell body

G

M 15 x 1

AMPHENOL

voir tableau désignation
see reference table

PG9 DIN 40430

câble
Ø 3.5 - Ø 8
cable

presse étoupe PG9 plastique - Inclus
plastic PG9 gland backshell - Included

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

Removal tool

Part number: **TV UCOM ODE**

AMPHENOL TV UCOM ODE XX-X-X

25

Ø 20
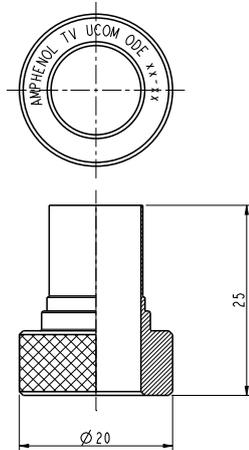
Panel Gasket for TVP00

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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Amphenol SOCAPEX

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	For Jam nut receptacle
Part number : **RC00N11**	Part number : **RC07N11**
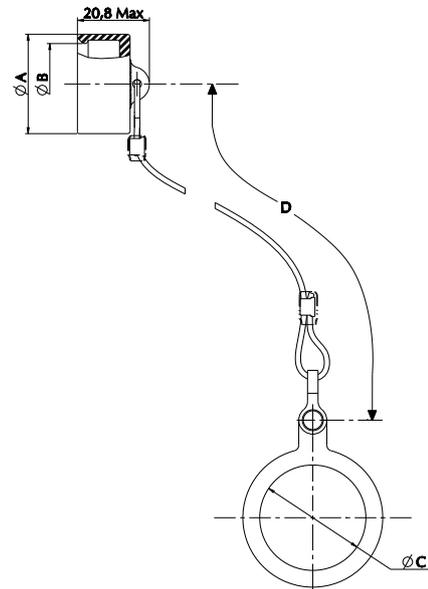
Size	Ø C +0,25 0	Ø A Max	Ø B Max	D Max
11	22,63	22,55	17,2	**140**

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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

Part number type : **BEC X TV X 11**
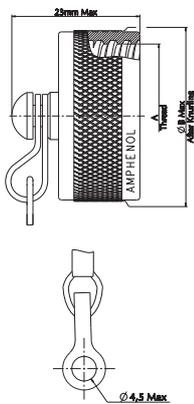
For Jam nut receptacle

Part number type : **BER X TV X 11**
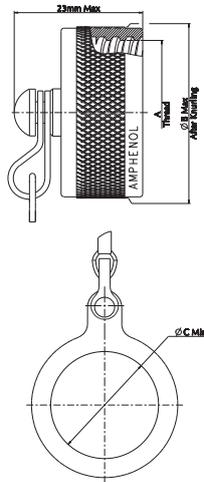
For Jam nut Reduced flange receptacle

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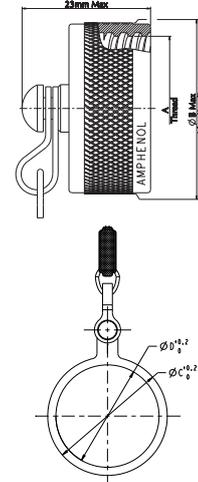
For Plugs

Part number type : **BF X TV X 11**
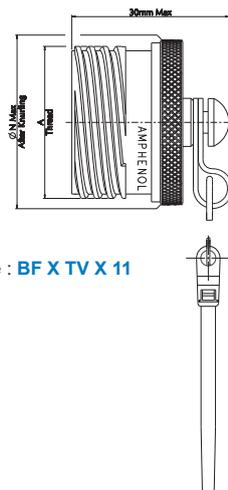
Part number type : **BFROTV X 11**
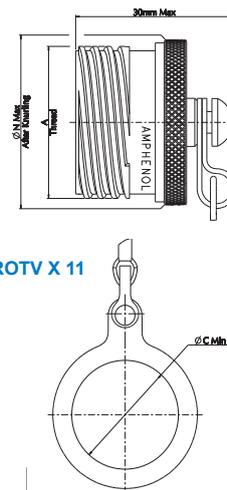
Lanyard (Attachment) Length

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

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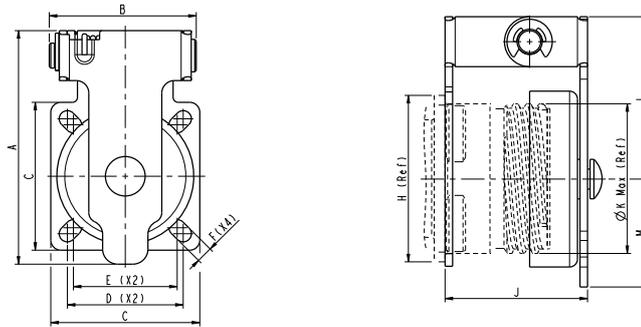
Size	A	B	C	D	E	F	H	J	ØK Max	L	M	N	ØP Min	ØQ ± 0,13
11	43,0	27,2	27,2	20,62	18,26	3,25	26,19	31,2	19,05	27,0	16,0	20,62	15,88	3,25

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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 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

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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

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 :
- 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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