

USBFIELD™



TABLE OF CONTENT

About Amphenol Socapex	4
Markets and applications	8
Other solutions and related documentations	9
Concept overview and benefits	10
USB standards and appropriate solutions	11
USB3.2 GEN1	13
USB3FTV™	14
USB3FTV™ - Transversally sealed and hermetic receptacle	18
USB3FTV™ - Stand-off receptacle	21
USB3FTV™ - Reduced flange receptacle	23
USB3FTV™ - VG96949	25
USB2.0	27
USBFTV™	28
USBFTV™ - Transversally sealed and hermetic receptacle	33
USBFTV™ - Stand-off receptacle	38
USBFTV™ - Through-bulkhead receptacle	40
USBFTV™ - Receptacle with 360° EMI backshell	41
USBFTV™ - Atex Zone 2	42
USBBFTV	44
USBBFTV - Transversally sealed receptacle	48
USBBFTV - Stand-off receptacle	49
CABLES AND CORDSETS	53
USB3.2 Gen1 cable and cordset	54
USB2.0 cable and cordset	55
ADAPTORS AND ACCESS POINTS	57
USB3.2 Gen1 and USB2.0 access point	58
Composite USB2.0 access point	60
USB2.0 to type EN3646 - PT/451 - ABS1547 adaptor	65
RUGGED ELECTRONICS	67
USB3FTV™ Memory key	68
ROK - Rugged Oval Key	69
USBFTV™ - USB2.0 amplifier	70
ACCESSORIES	73
Standard protective cap - USBFTV™	74
Self-closing cap - USBFTV™	75
Panel gasket and tool	76
ASSEMBLY INSTRUCTIONS	79
USB3FTV™	80
USBFTV™ and USBBF TV	82



TABLE OF CONTENT

HOW TO ORDER	85
USB3FTV™ - Plug and receptacle	86
USB3FTV™ - Transversally sealed and hermetic receptacle	87
USB3FTV™ - VG96949	88
USBFTV™ - Plug and receptacle	89
USBFTV™ - Transversally sealed and hermetic receptacle	90
USBFTV™ - Atex Zone 2	91
USBBFTV™ - Plug and receptacle	92
USBBFTV™ - Transversally sealed receptacle	93
Cable	94
Cordset	95
USB3FTV™ Memory Key	96
ROK - Rugged Oval Key	97
Standard protective cap	98

OUR COMPANY



Proven excellence in interconnect solutions

- Since **1947**, Amphenol Socapex has prescribed, designed and manufactured reliable and innovative interconnection solutions for harsh environments, specializing in standard and customized electrical and fiber optic connectors, contacts, accessories and cabling solutions.
- Located in the **Mont Blanc region** of France and Pune in India, Amphenol Socapex serve customers in over 100 countries around the world.
- Amphenol Socapex is part of the leading supplier of interconnect systems **Amphenol**.



1100+
employees



109 M€
Net Sales 2022
71% Export - 29% France



Thyez, **France**
Pune, **India**



Our expertise has no boundaries

Integrated Production in France & India

- 24 000 m² manufacturing capacity on 2 sites
- Design and manufacturing centers in France and India
- State-of-the-art manufacturing technology

Our markets



Military



**Commercial
Aerospace**



Space



Industry



TECHNOLOGIES & INNOVATION

Engineering Laboratory



Product testing and qualification expertise in many fields:

- Environmental, mechanical, electrical, chemical, climatic skills
- RF and fiber optics expertise

High-Speed Expertise



Strong expertise in high-speed signals

- 3D EM simulation software & EM models
- Time Domain and frequency domain

Materials Expertise



Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products

- Advanced technology research and development: polymers, metals, platings, resins ...
- Cutting edge characterizations of interconnects: Radio Frequency, partial discharges ...
- 3D CAD mechanical software, simulation & analysis

Eco-responsibility



Sustainable environment approach, with pro-active management of regulations (REACH / RoHS / Conflict minerals...)

- New materials development, plating, and suitable processes
- Recycling and rational resources consumption

Our workshops



Our workshops located in France & India provide consistent quality adapted to your volume requirements.

Automation & Tooling : Tools for our different activities : molding, machining, assembly

Molding : Solid expertise in thermoplastic elastomer and thermoset molding

Machining : Manufacturing of cylindrical shells and rectangular shells

Screw Machining : Manufacturing of electrical contacts

Plating : Plating with cadmium, nickel, electroless nickel, silver, black zinc nickel, gold

Assembly : Connector and harness assembly (electrical & optical)

Our certifications

Product certifications : MIL-DTL38999, EN3645, EN3155, VG (VG95328, VG95319, VG96944, VG95218, VG96949)



Certified Management System



Certified Management System



Certified Management System



Certified Management System

Our memberships

Member of CMG (Connecting Manufacturing Group) Consortium



CONVERSION DE L'ÉNERGIE

CUSTOMER EXPERIENCE



► We have a strong reputation for helping customers solve their toughest challenges. This approach of serving your needs is ingrained in our company - from our sales team to our product development engineers.

A partner you can trust

Customer Proximity	Design Expertise	Quality Commitment	On Time Delivery Performance	Compliance management

Buy our solutions

You can access our solutions through our global network of sales offices or through our distributors.

Field Sales Team :

- 10 in France
- 15 in Europe
- 100+ in North America and rest of the world.
- 5 Business Development Managers supporting local sales force Europe, North America and the rest of the world

- Technical Advisement & Multilingual Customer Service :**
20 people



Worldwide Distribution Network :

Our range of circular connectors, contacts, fiber optic connectors, PCB connectors and accessories are available thru our extensive distribution network.

It includes qualified distributors (QPL approved) for assembling MIL-DTL-38999 & derivatives and PT/451 (VG95328) connectors.

[Check our product inventory](#)



[Product Selectors & 3D Files](#)



NEW



OUR HISTORY

1947



- **Socapex creation** in Suresnes, France
- 1st radio connector

1956-57



- **Manufacturing unit in Cluses** (74), France
- Thomson-CSF becomes primary shareholder

Early 1960's



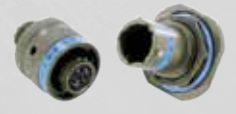
- 1st board level connectors: HE8
- 1st "licence Bendix" manufactured connectors
- SL Series

1973



New factory in Thyez (74) France with 250 people, 13 000m²

1975



Production of 38999 connectors

1986

Amphenol
Socapex

Amphenol becomes primary shareholder

1995-96



- Expanded Beam connector
- CTOS launch
- Headquarters transferred to Thyez

2004



RJ Field launch, "Award"
Electronica

2005



New factory in Pune, India

2010's



LuxBeam™ and HDAS launch

2014-2017



New workshops :
- Cable Assembly & Contact Manufacturing workshop

2019



Increased manufacturing capacity with 2nd building in Pune, India

2022



Harness in the box solution launch

Today & tomorrow



New technologies :
- Investment in automation & technical expertise



Amphenol SOCAPEX joins the "Convention des Entreprises pour le Climat".
- Our goal: **to accelerate our transition to a more sustainable operation.**

MARKETS AND APPLICATIONS



Military vehicles

- Ground radios shelters
- Ground vehicles
- Battlefield
- Communication systems



C5ISR

- Threat detection system
- Soldier wearable equipment
- Rugged computer & digital radio
- Satellite reception unit



Military Avionics & Airframe

- Power unit
- Aircraft
- Radar
- Display unit
- Flight control system



Commercial Avionics & Airframe

- Landing gear
- Cockpit
- Ground power supply
- Engine Flowmeter



Missiles & UAVS

- Air missiles and UAVS
- Ground control station & launchers



Navy

- Navigation guidance



Industrial

- Automation
- Transportation
- Nuclear power station
- Robotics

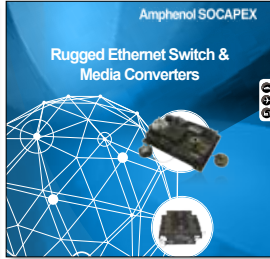


OTHER SOLUTIONS AND RELATED DOCUMENTATIONS

All our documentations are available in PDF format on our website : www.amphenol-socapex.com



Catalog RJ Field™
DOC-001041-ANG



Catalog Rugged Ethernet Switch and Media Converters
DOC-001034-ANG



Brochure μCom-10Gb+
DOC-000015-ANG



Brochure TV μCom-10Gb+
DOC-001014-ANG



Brochure RJF TV Reduced Flange
DOC-001013-ANG



Brochure USB3F TV Reduced Flange
DOC-001012-ANG



Brochure MDP FTV
DOC-001025-ANG



Brochure HDMI FTV
DOC-001036-ANG



Brochure RJF 6A
DOC-001021-ANG



Brochure RJF TV6A
DOC-001020-ANG



Brochure μCom & TVμCom USB3.2 Gen1
DOC-001032-ANG

CONCEPT OVERVIEW AND BENEFITS

5 TOP REASONS to use USBFIELD™

1 Military. Ruggedized. Connectors

Our concept is simple : use standard, well-know, military connectors as MIL-DTL-38999 series III and MIL-DTL-26482 series I to reinforce standard industrial connectors as RJ45 or USB.



2 No tool. No cabling. Easy mounting

Our USB solution enables you to use a standard USB cordset and mount itself without any cabling operation or tool.



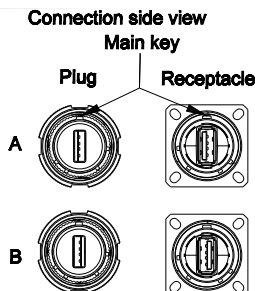
3 Electric continuity. Metallized inserts

Our solutions provide a total shielding continuity per the metallisation of parts in the receptacle.



4 Two codings. Only one reference

Our connectors, plugs and receptacles, can be configured in four different codings with the same reference.



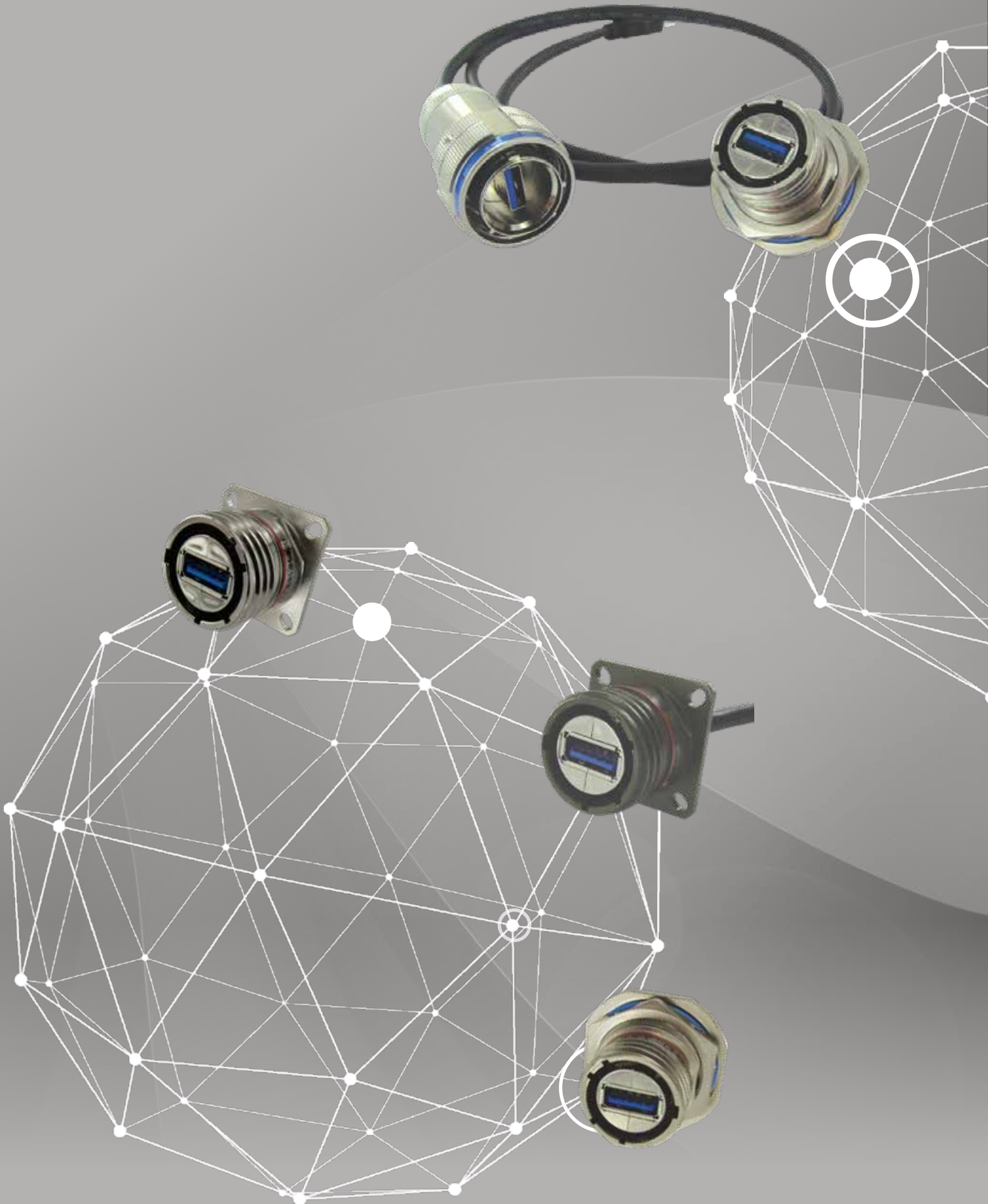
5 Modifiable. Repairable. Removal inserts

Our parts can be changed as simply as the assembly, using a dedicated tool or simply by hands. This allows to remove the cordset, change the coding option or repair the solution.



USB STANDARDS AND APPROPRIATE SOLUTIONS

	USB2.0	USB3.2 Gen1
Data Rate	480 Mb/s	5 Gb/s
Voltage	5 V	5 V
Current	1,5A	1,5A
Power	2,5 W	2,5 W
Number of contacts	2 power 2 signal	2 power 6 signal
Max cable length per USB standard	4,80 m	3 m
USB3FTV™	✓	✓
USBFTV™	✓	
USBBFTV	✓	✓
Cable and cordset	✓	✓
Adaptor and access point	✓	✓
USB3FTV™ memory key	✓	✓
ROK - Memory key	✓	✓
USBFTV™ - USB2.0 amplifier	✓	



USB3.2 GEN1



Table of contents

USB3.2 GEN1	13
USB3FTV™	14
USB3FTV™ - Transversally sealed and hermetic receptacle	18
USB3FTV™ - Stand-off receptacle	21
USB3FTV™ - Reduced flange receptacle	23
USB3FTV™ - VG96949	25

USB3FTV™



Description

USB3FTV™ is a complete ruggedized solution around USB3.2 Gen1 Type-A standard using a Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) to connect the plug and receptacle.

This solution allows you to insert a standard USB3.2 Gen1 cordset into a metallic plug which will protect it from shocks, dust and fluids. The assembly of this ruggedized plug doesn't require any tools and can be assembled easily in the field. Perfectly adapted to the USB3.2 Gen1 standard, you have two coding possibilities to facilitate coupling when you have several receptacles on a panel.

The corresponding USB3FTV™ receptacle dedicated to be mounted on your panel enables you to reinforce and protect your system against leakage, shocks, vibrations and much more. This receptacle part is delivered with a defined coding when ordered but can be conveniently changed with our dedicated USBF ODE tool.

You have also the possibility to order a complete solution with the included USB3.2 Gen1 cable, on the plug or the receptacle side.

Main features

MAIN CHARACTERISTICS

- Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15
- 2 mechanical coding / polarization possibilities (receptacle insert rotation)
- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- USB3FTV plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 minimum

DATA TRANSMISSION

- USB-A
- USB specification 3.2 Gen1
- Data rate: up to 5Gb/s for high speed USB

ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray: - 48 h with nickel plating ✓
- 500 h with black zinc nickel ✓
- 500 h with olive drab cadmium
- 1000 h with marine bronze shell ✓
- Fire retardant / low smoke: UL94 V0 and EN45545
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06: weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 43°C, 98% humidity
- Temperature range: - 40°C / +85°C

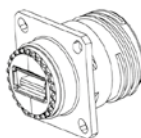
APPLICATIONS

- Battlefield communication systems
- C5ISR
- Data acquisition and transmission in harsh environment
- Navy
- Rail Mass Transit
- Industrial process control
- Robotics
- CNC machines
- Oil & Gas

How to order : Please refer to page 86

Back terminations

Type 1:
female USB-A



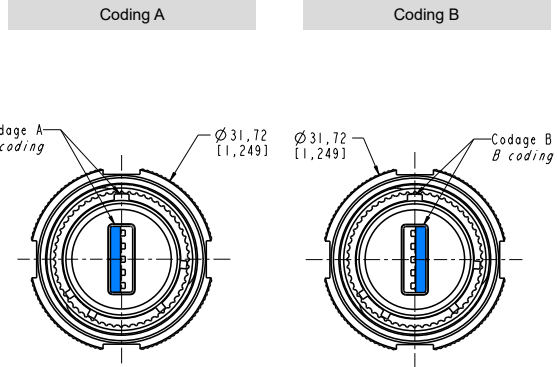
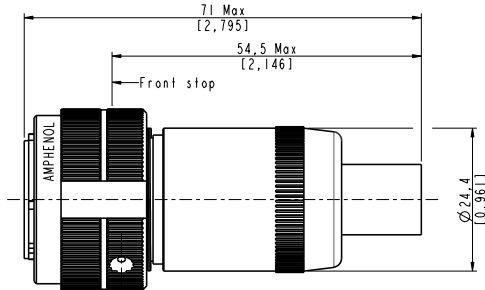
✓: RoHS compliant

USB3FTV™

Overall dimension

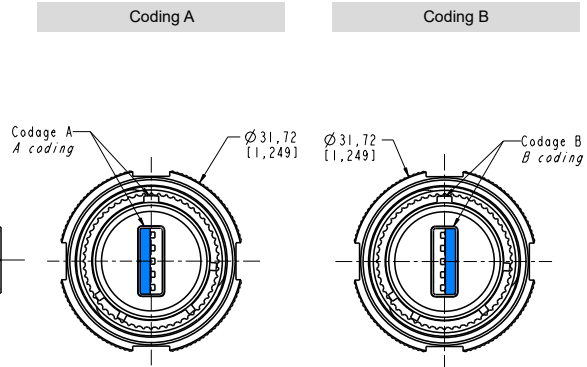
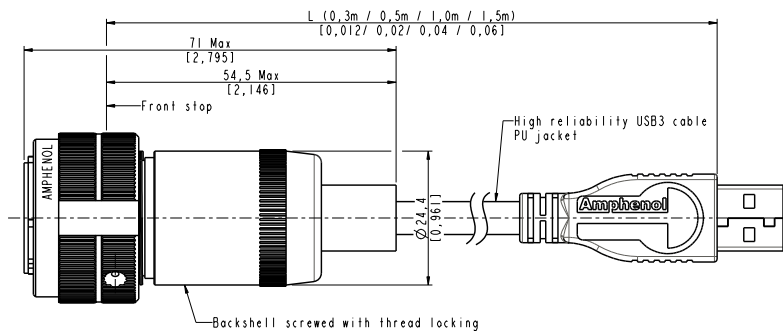
Plug - Shell type 6

Part number type: **USB3FTV 6 X**



Plug - Shell type 6 - USB-A cordset

Part number type: **USB3FTV 6 X XX X CROS**
USB3FTV 6 X XX X STR

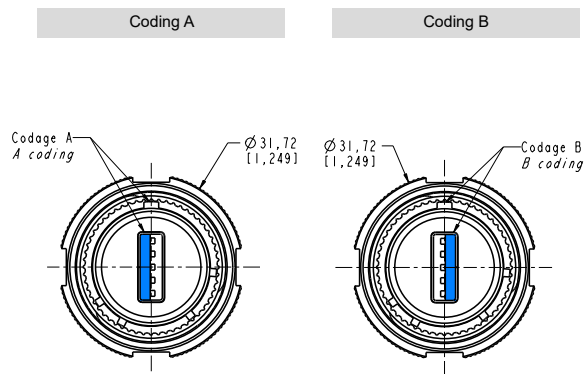
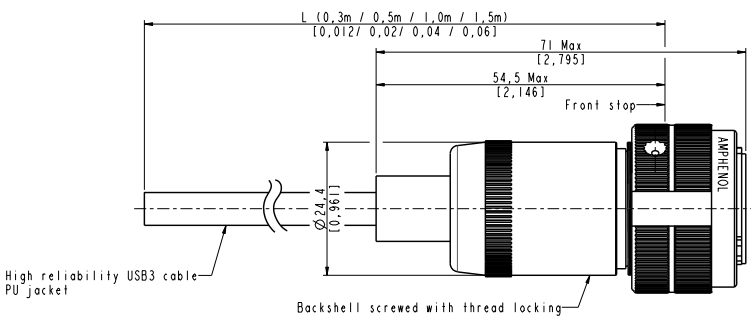


Important note:

- To define a straight or crossed USB3.2 Gen1 cordset, please refer to "Assembly instructions" page 80

Plug - Shell type 6 - Open USB cordset

Part number type: **USB3FTV 6 X XX X OPEN**

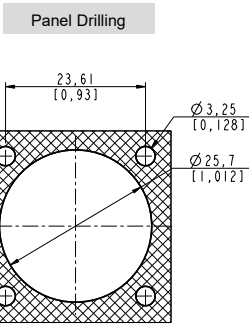
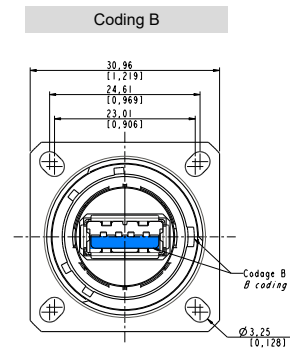
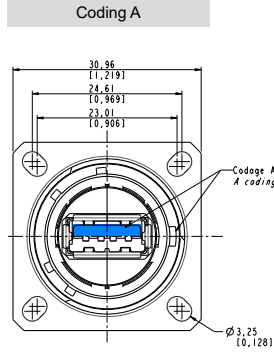
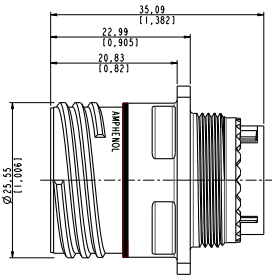


USB3FTV™

Overall dimension

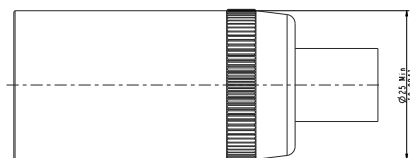
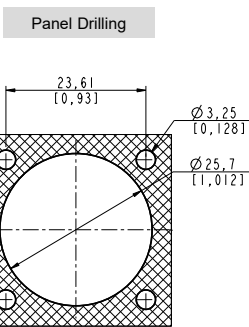
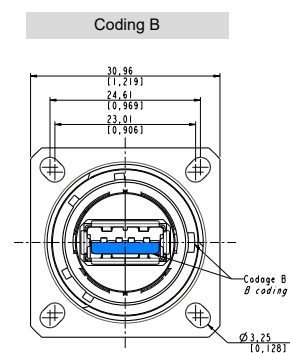
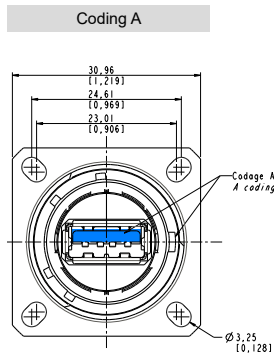
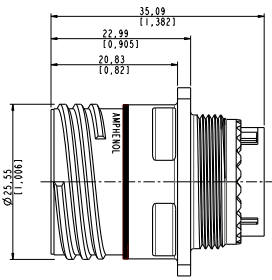
Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 1

Part number type: **USB3FTV 2 1 X**



Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 1 - Metal backshell

Part number type: **USB3FTV 2 X PE 1**

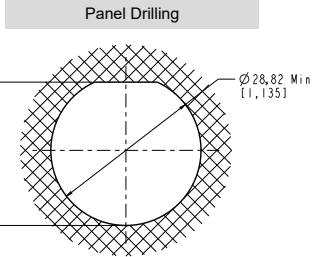
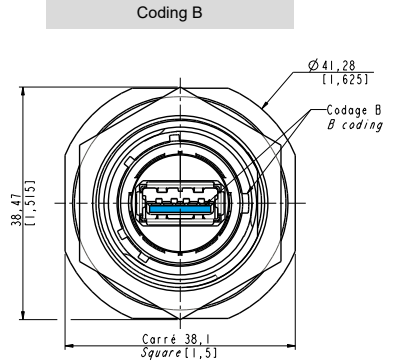
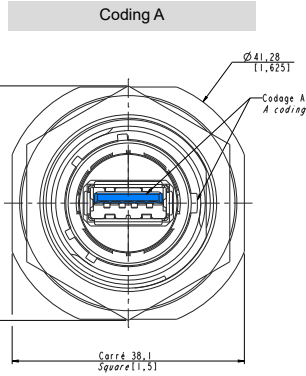
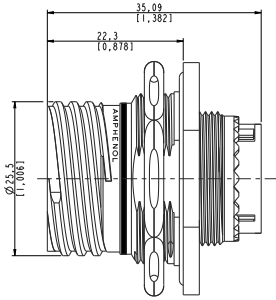


USB3FTV™

Overall dimension

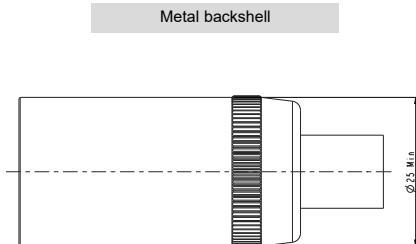
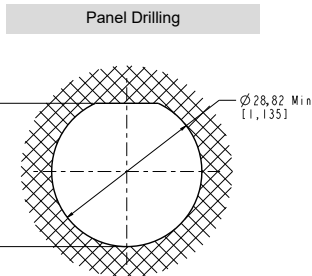
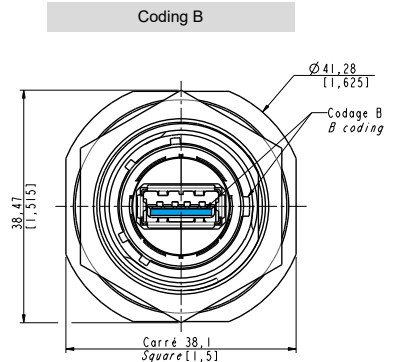
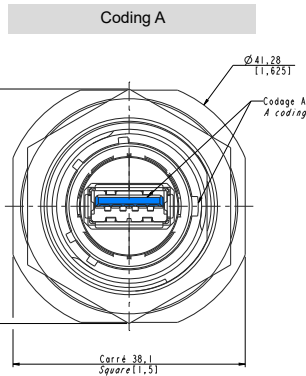
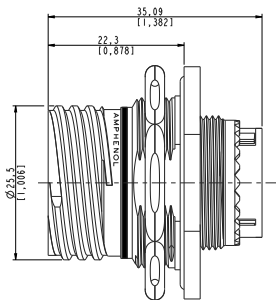
Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 1

Part number type: **USB3FTV 7 1 X**



Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 1 - Metal backshell

Part number type: **USB3FTV 7 X PE 1**



USB3FTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE



Description

The transversally sealed receptacle is in all aspects equivalent to the standard and in addition, is improved with compound at the rear of the receptacle. This will prevent the sealing of the receptacle when unmated with his plug or protective cap.

The hermetic solution, as the transversally sealed one is compounded at the rear of the receptacle. Helium leakage is less than 1.10-6 cm³ per second [0.1 micron cubit ft per hour] at one bar [15 psi] pressure differential. The test is performed on all of the hermetic receptacles.

Main features

MAIN CHARACTERISTICS

- Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15
- 2 mechanical coding/polarization possibilities by the user (receptacle insert rotation)
- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- USB3FTV plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 minimum

DATA TRANSMISSION

- USB-A
- USB specification 3.2 Gen1
- Data rate: up to 5Gb/s for high speed USB

ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h with olive drab cadmium
 - 1000 h with marine bronze shell ✓
 - 500 h with black zinc nickel ✓
- Fire retardant / Low smoke: UL94 V0 and EN45545
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06 > weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 43°C, 98% humidity
- Temperature range: - 40°C / +85°C

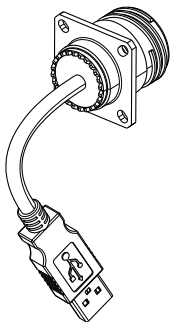
APPLICATIONS

- Battlefield communication systems
- C5ISR
- Data acquisition and transmission in harsh environment
- Navy
- Rail Mass Transit
- Industrial process control
- Robotics
- CNC machines
- Oil & Gas

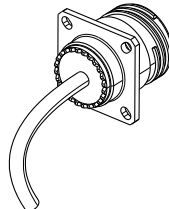
How to order : Please refer to page 87

Back terminations

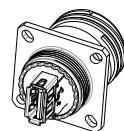
USB cable end type A



USB cable type «OPEN»



VG96949 Female USB-A



✓: RoHS compliant

USB3FTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

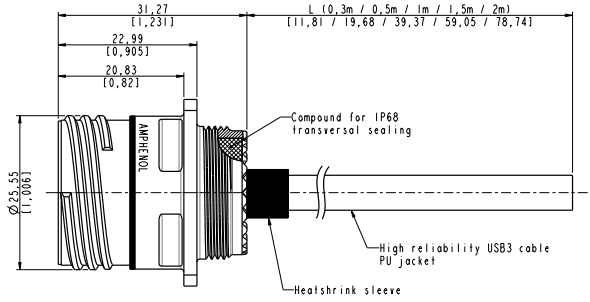
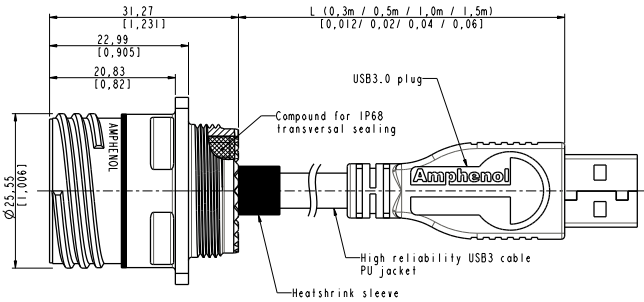
Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - USB-A or Open cordset

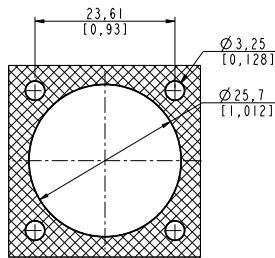
Part number type: **USB3FTV 2 S X XX X ACROS**

USB3FTV 2 S X XX X ASTR

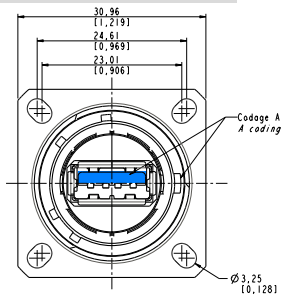
Part number type: **USB3FTV 2 S X XX X OPEN**



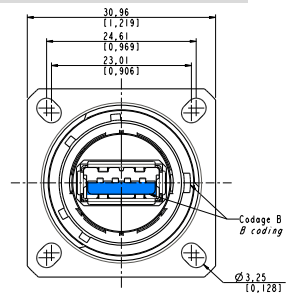
Panel drilling



Coding A



Coding B

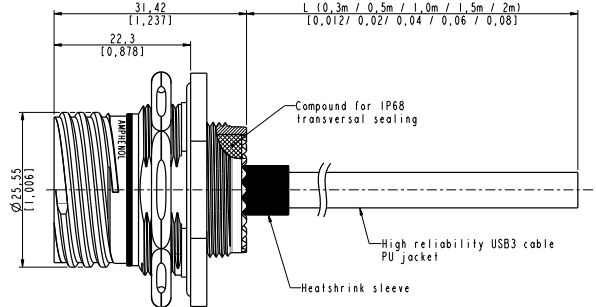
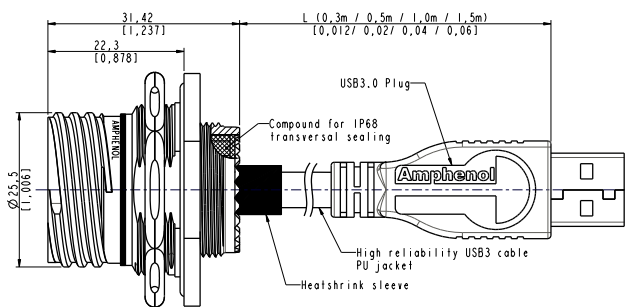


Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - USB-A or Open cordset

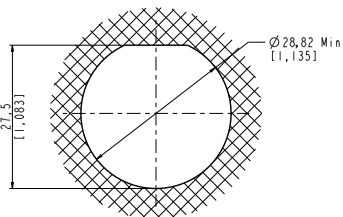
Part number type: **USB3FTV 7 S X XX X ACROS**

USB3FTV 7 S X XX X ASTR

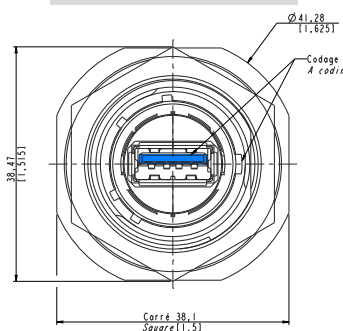
Part number type: **USB3FTV 7 S X XX X OPEN**



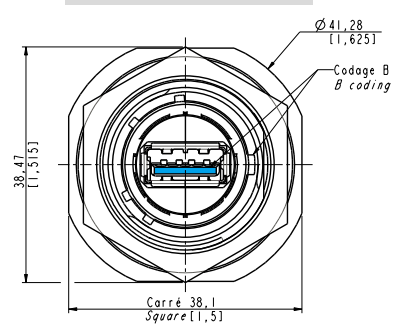
Panel drilling



Coding A



Coding B



Important note:

- To define a straight or crossed USB3.0 cordset, please refer to "Assembly instructions" page 80

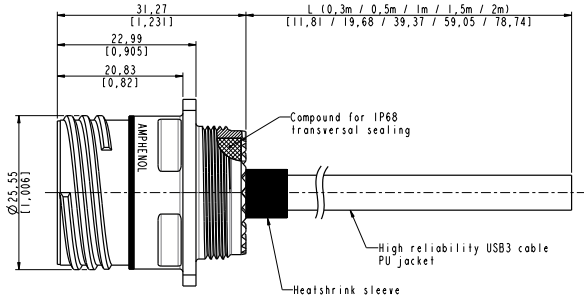
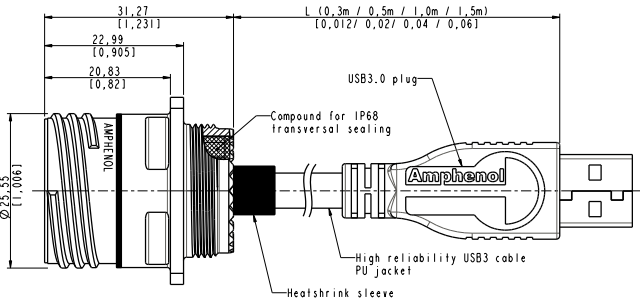
USB3FTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

Overall dimension

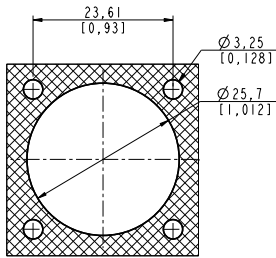
Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - USB-A or Open cordset

Part number type: **USB3FTV 2 H X XX X ACROS**
USB3FTV 2 H X XX X ASTR

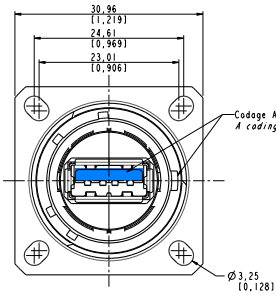
Part number type: **USB3FTV 2 H X XX X OPEN**



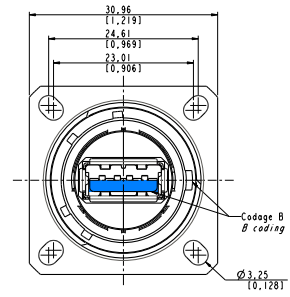
Panel drilling



Coding A



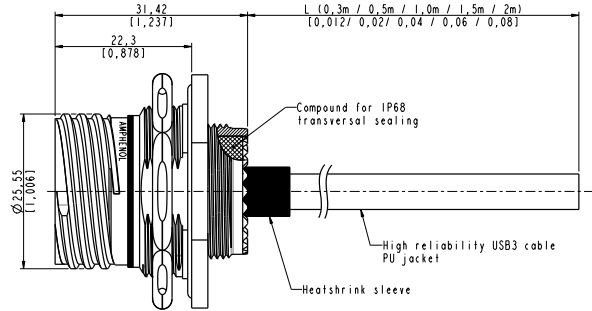
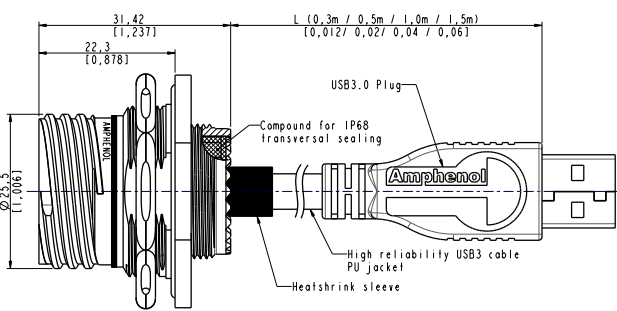
Coding B



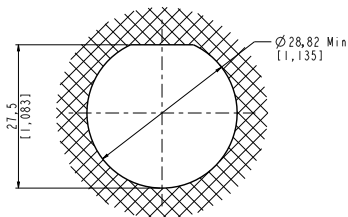
Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - USB-A or Open cordset

Part number type: **USB3FTV 7 H X XX X ACROS**
USB3FTV 7 H X XX X ASTR

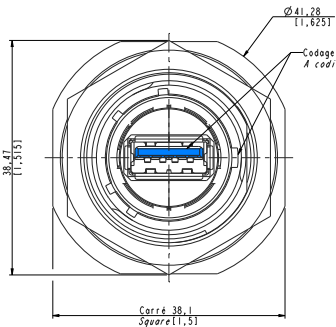
Part number type: **USB3FTV 7 H X XX X OPEN**



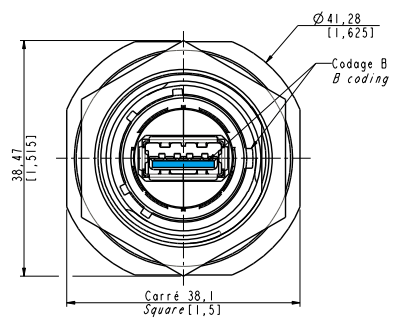
Panel drilling



Coding A



Coding B



Important note:

- To define a straight or crossed USB3.0 cordset, please refer to "Assembly instructions" page 80

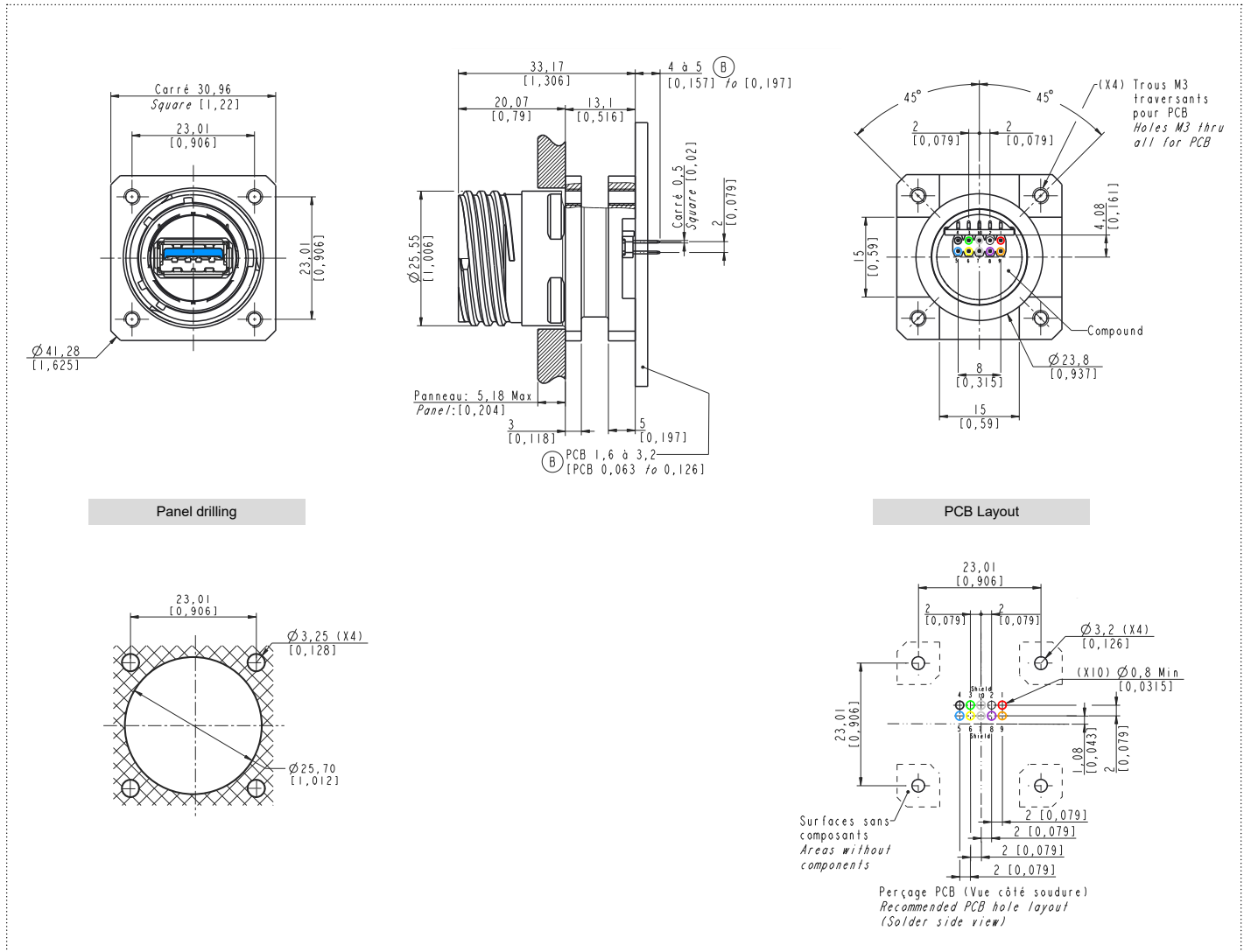
USB3FTV™ - STAND OFF RECEPTACLE

Description

This enhanced design allows you to mount the connector shell directly on the PC board. Soldering your contacts directly on the board will save you a lot of space inside your system. As the double-flange of this connector is directly fixed on the board, mechanical stresses are absorbed by the shell and not the contacts. In addition to this benefit, the sealing is improved by the compounded receptacle.

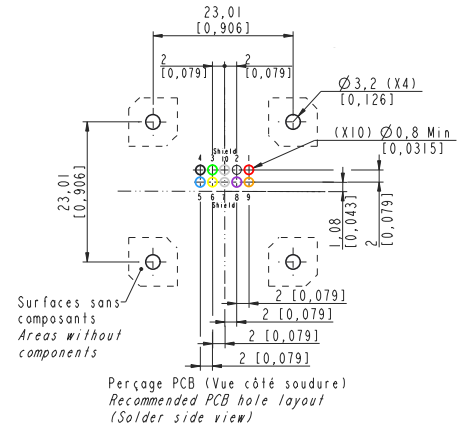
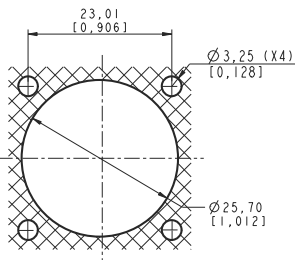
Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - PC Tails contacts



Panel drilling

PCB Layout



Part number for coding A

USB3FTV 2S A N F459

USB3FTV 2S A G F459

USB3FTV 2S A ZN F459

Part number for coding B

USB3FTV 2S B N F459

USB3FTV 2S B G F459

USB3FTV 2S B ZN F459

Plating

Nickel ✓

Olive drab cadmium

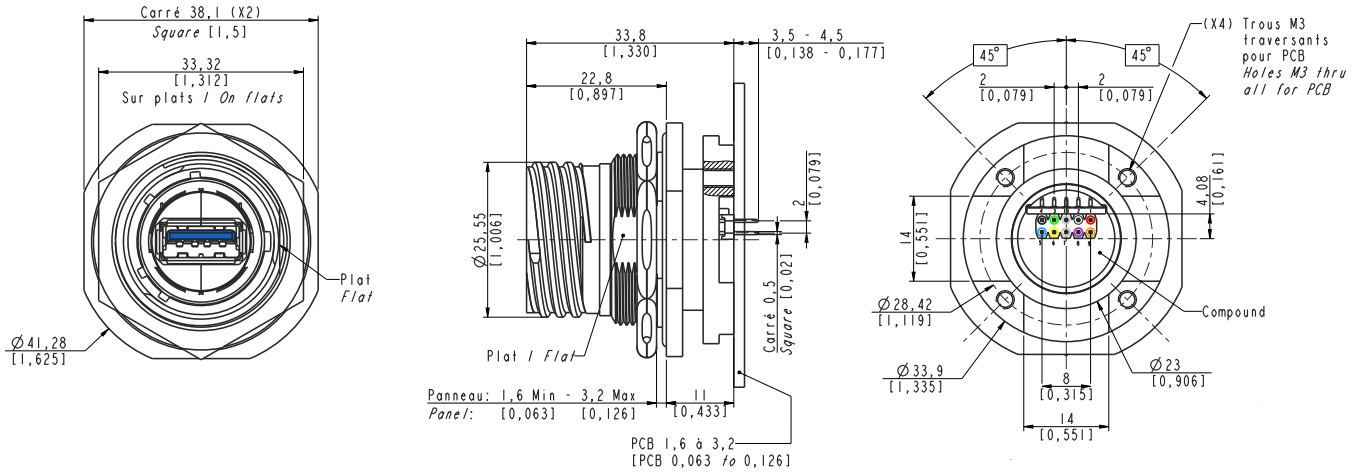
Black zinc nickel ✓

✓: RoHS compliant

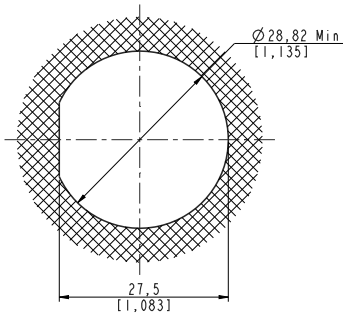
USB3FTV™ - STAND OFF RECEPTACLE

Overall dimension

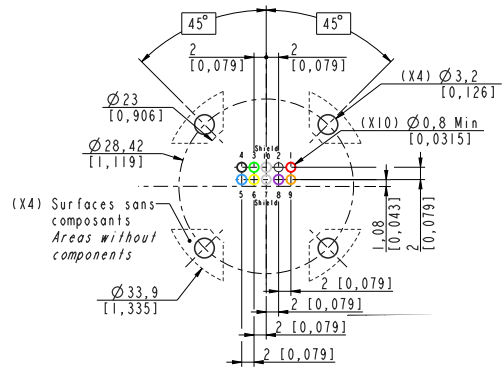
Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - PC Tails contacts



Panel drilling



PCB Layout



Part number for coding A

USB3FTV 7S A N F459

USB3FTV 7S A G F459

USB3FTV 7S A ZN F459

Part number for coding B

USB3FTV 7S B N F459

USB3FTV 7S B G F459

USB3FTV 7S B ZN F459

Plating

Nickel ✓

Olive drab cadmium

Black zinc nickel ✓

✓: RoHS compliant

USB3FTV™ - REDUCED FLANGE RECEPTACLE

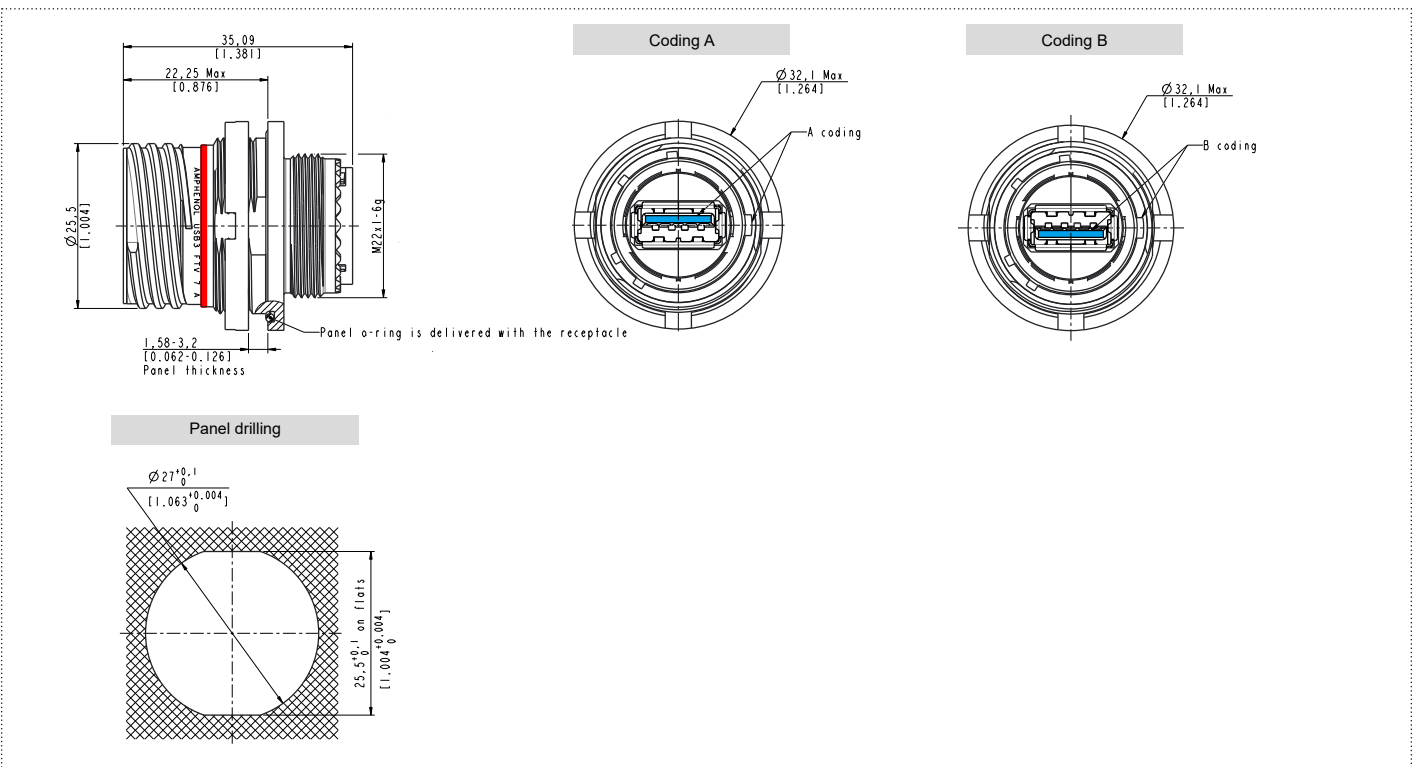


Description

This Reduced Flange USB3FTV™ is ideal for applications where small dimensions and lower weight are critical. The flange of this receptacle is reduced in order to gain more space on the panel enabling you to mount more receptacles in the same amount of space. Internal dimensions are also modified to save some space internally, giving you more space. The reduced flange deviation saves 41% footprint surface reduction and is 15% lighter than standard USB3FTV™ receptacle. Finally, you have two castle nut options, standard castle nut and safety castle nut that enable you to add a lock wire for anti-rotation of the nut.

Overall dimension

Receptacle - Reduced flange receptacle - Castle nut mounting - Shell type 7 - F312 or F311



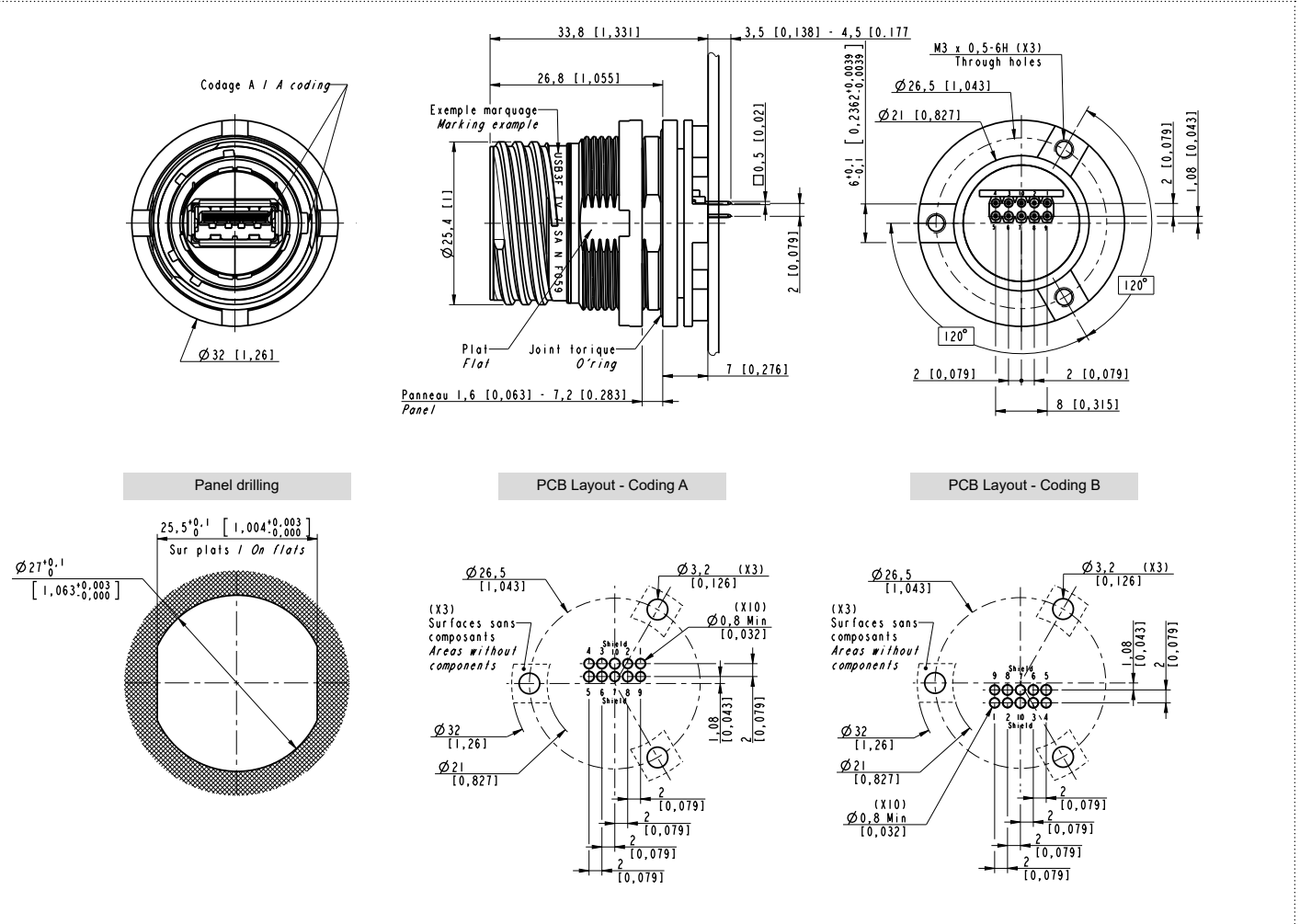
Part number for coding A	Part number for coding B	Mounting nut option	Plating
USB3FTV 7 A N F312	USB3FTV 7 B N F312	Standard caste nut	Nickel ✓
USB3FTV 7 A G F312	USB3FTV 7 B G F312		Olive drab cadmium
USB3FTV 7 A ZN F312	USB3FTV 7 B ZN F312		Black zinc nickel ✓
USB3FTV 7 A N F311	USB3FTV 7 B N F311	Safety caste nut	Nickel ✓
USB3FTV 7 A G F311	USB3FTV 7 B G F311		Olive drab cadmium
USB3FTV 7 A ZN F311	USB3FTV 7 B ZN F311		Black zinc nickel ✓

✓: RoHS compliant

USB3FTV™ - REDUCED FLANGE RECEPTACLE

Overall dimension

Receptacle - Reduced flange receptacle - Castle nut mounting - Shell type 7 - F059 or F058



Part number for coding A	Part number for coding B	Mounting nut option	Plating
USB3FTV 7 SA N F059	USB3FTV 7 SB N F059	Standard caste nut	Nickel ✓
USB3FTV 7 SA G F059	USB3FTV 7 SB G F059		Olive drab cadmium
USB3FTV 7 SA ZN F059	USB3FTV 7 SB ZN F059		Black zinc nickel ✓
USB3FTV 7 SA N F058	USB3FTV 7 SB N F058	Safety caste nut	Nickel ✓
USB3FTV 7 SA G F058	USB3FTV 7 SB G F058		Olive drab cadmium
USB3FTV 7 SA ZN F058	USB3FTV 7 SB ZN F058		Black zinc nickel ✓

✓: RoHS compliant

USB3FTV™ - VG96949



Description

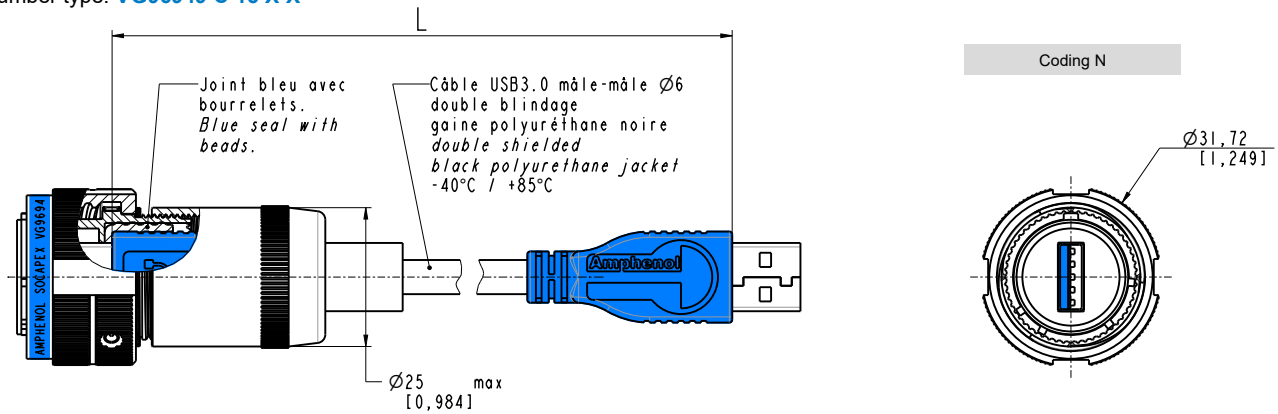
This version of our USB3FTV™ is qualified VG96949. According to this standard, receptacles are compounded, the panel nut of the jamnut receptacle version is according to VG95319 and the treatment is Tin Zinc RoHS.

How to order : Please refer to page 88

Overall dimension

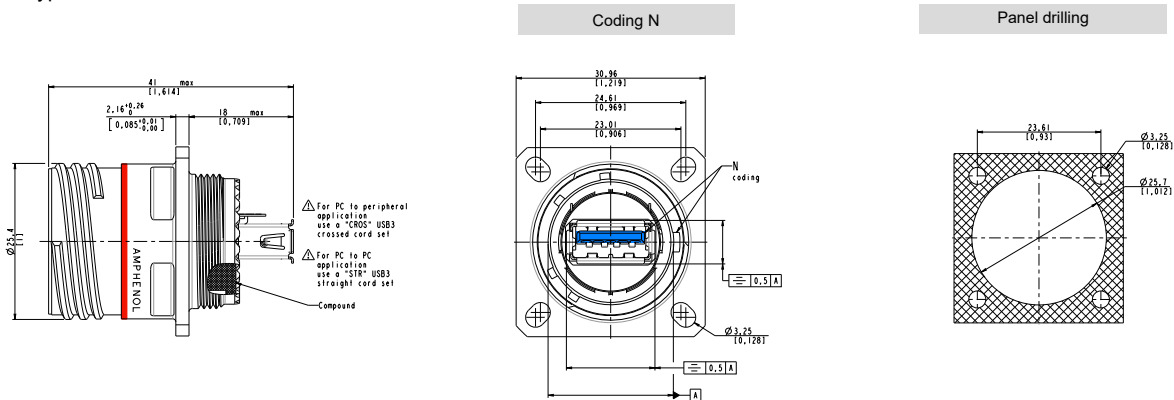
Plug - Shell type 6

Part number type: **VG96949 C 15 X X**



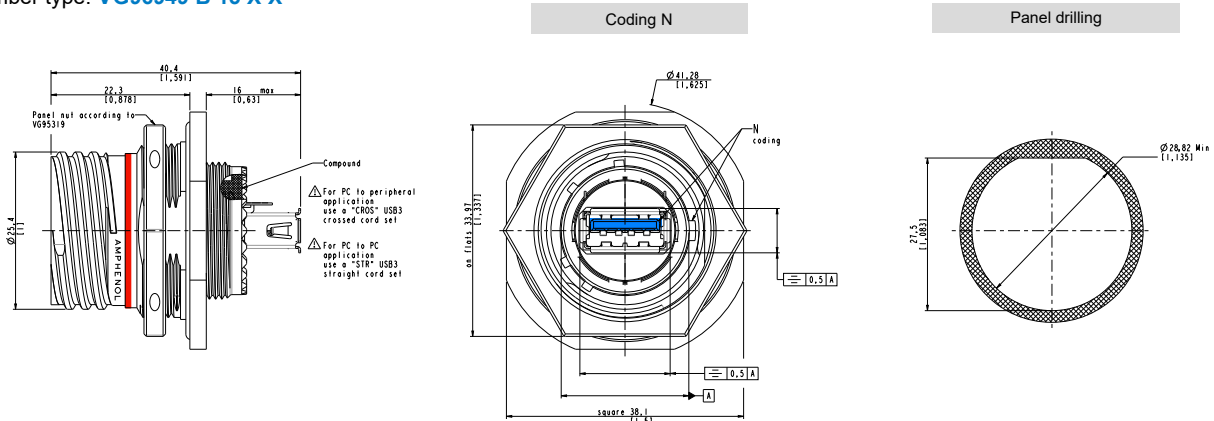
Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Compounded

Part number type: **VG96949 A 15 X X**

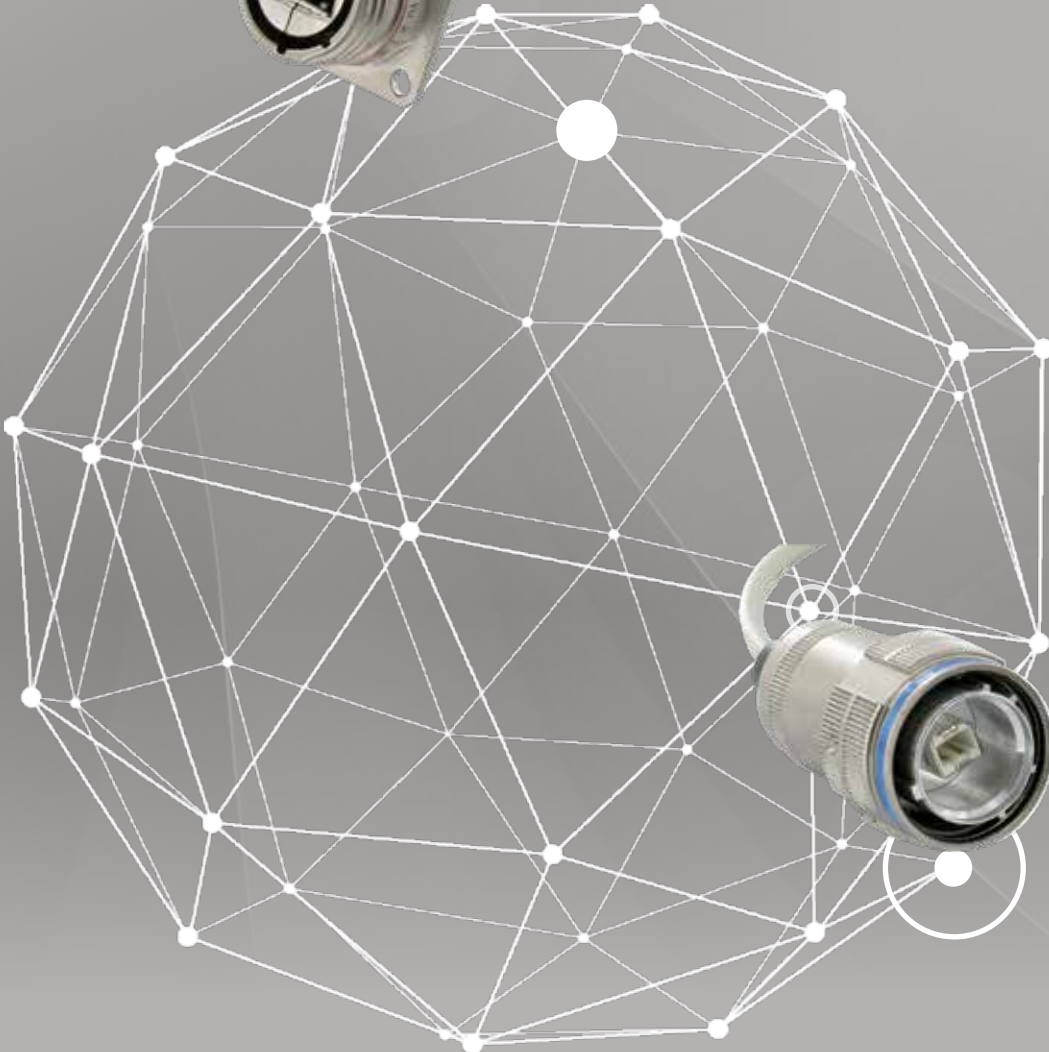


Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Compounded

Part number type: **VG96949 B 15 X X**



✓ RoHS compliant



USB2.0



Table of contents

USB2.0	27
USBFTV™	28
USBFTV™ - Transversally sealed and hermetic receptacle	33
USBFTV™ - Stand-off receptacle	38
USBFTV™ - Through-bulkhead receptacle	40
USBFTV™ - Receptacle with 360° EMI backshell	41
USBFTV™ - Atex Zone 2	42
USBBFTV	44
USBBFTV - Transversally sealed receptacle	48
USBBFTV - Stand-off receptacle	49

USBFTV™



Description

USBFTV™ is a complete ruggedized solution around USB2.0 Type-A standard using a Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) to connect the plug and receptacle.

This solution allows you to insert a standard USB 2.0 cordset into a metallic plug which will protect it from shocks, dust and fluids. The assembly of this ruggedized plug doesn't require any tools and is easily assembled on the field. Perfectly adapted to the USB2.0 standard, you have two coding possibilities to facilitate coupling when you have several receptacles on a panel.

The corresponding USBFTV™ receptacle dedicated to be mounted on your panel enables you to reinforce and protect your system against leakage, shocks, vibrations and much more. This receptacle part is delivered with a defined coding when ordered but can be conveniently changed with our dedicated USBF ODE tool.

Main features

MAIN CHARACTERISTICS

- Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15
- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- 2 mechanical coding / polarization possibilities by the user (receptacle insert rotation)
- USBFTV™ plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 minimum

DATA TRANSMISSION

- USB-A
- USB specification 2.0
- Data rate: up to 480 Mbps for high speed USB

ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h black zinc nickel ✓
 - 500 h with olive drab cadmium
 - 1000 h with marine bronze shell ✓
- Fire retardant / low smoke: UL94 V0 and EN45545
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06: weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Temperature range: - 40°C / +85°C

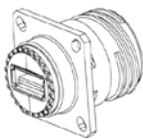
APPLICATIONS

- Battlefield communication systems
- C5ISR
- Data acquisition and transmission in harsh environment
- Navy
- Rail Mass Transit
- Industrial process control
- Robotics
- CNC machines
- Oil & Gas

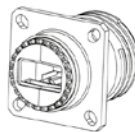
How to order : Please refer to page 89

Back terminations

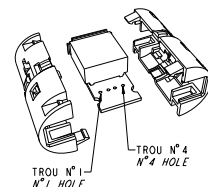
Type 1:
female USB-A



Type 2:
solder 4 Tinned holes to solder your cable



View of the PCB of the Type 2 version with 4 tinned holes for solder termination



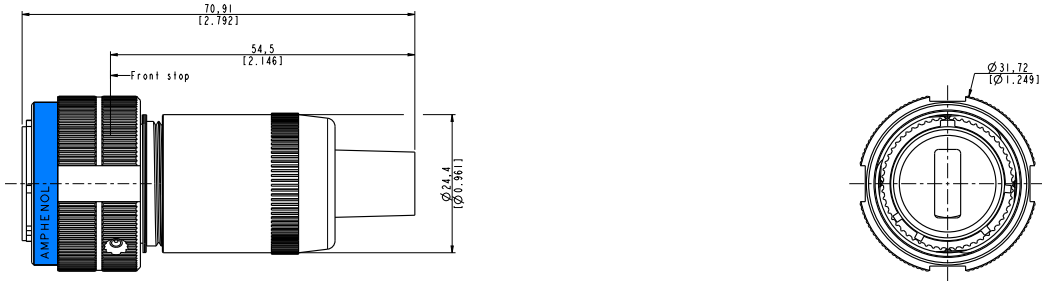
✓ : RoHS compliant

USBFTV™

Overall dimension

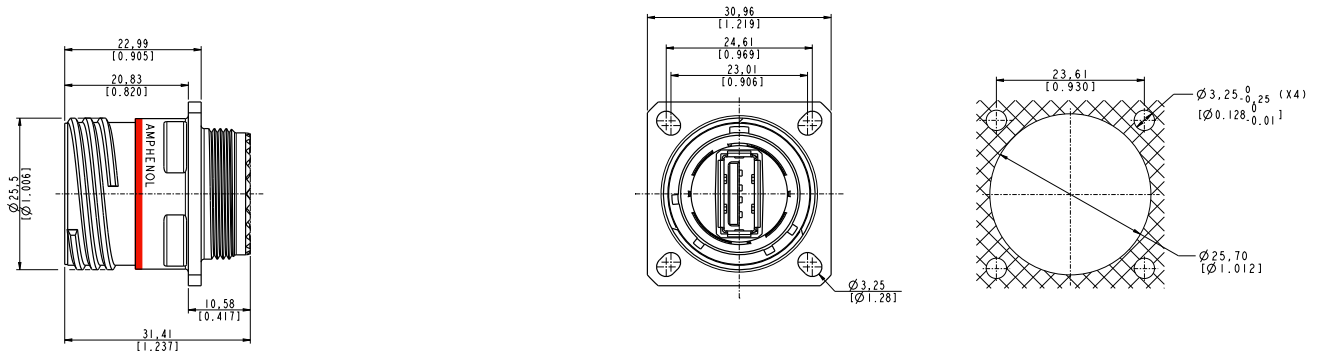
Plug - Shell type 6

Part number type: **USBFTV 6 X**



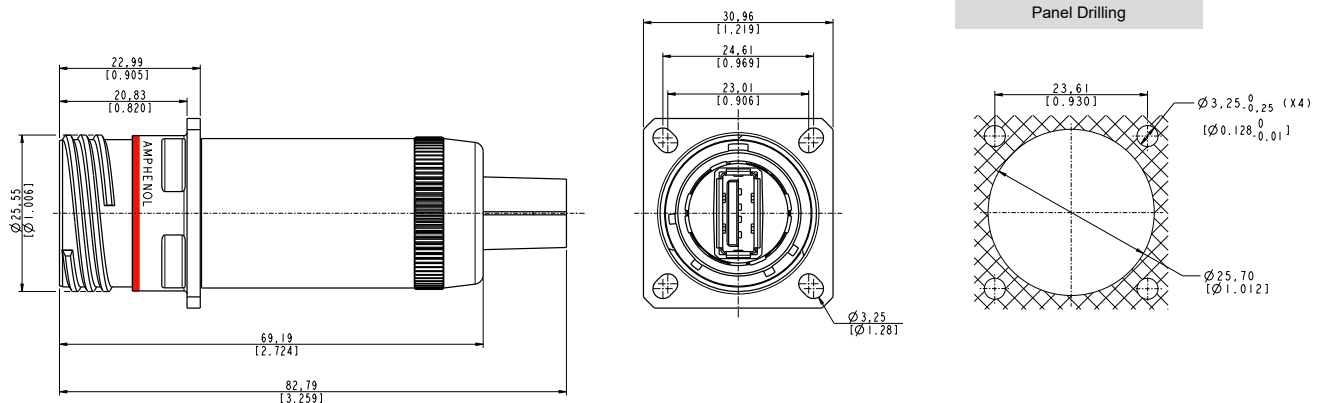
Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 1

Part number type: **USBFTV 2 1 X**



Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 1 - Metal backshell

Part number type: **USBFTV 2 PE 1 X**

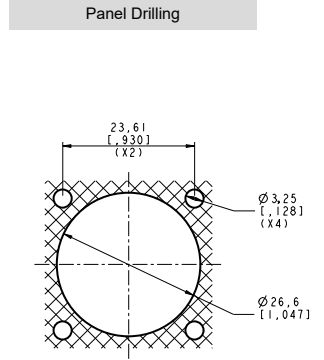
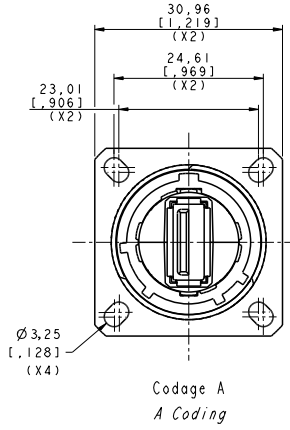
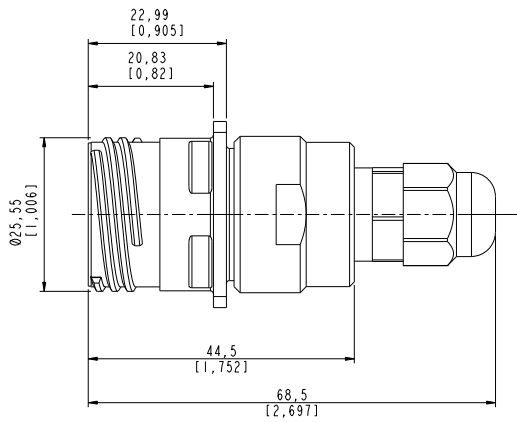


USBFTV™

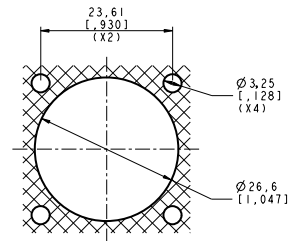
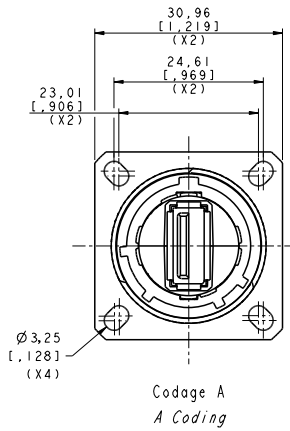
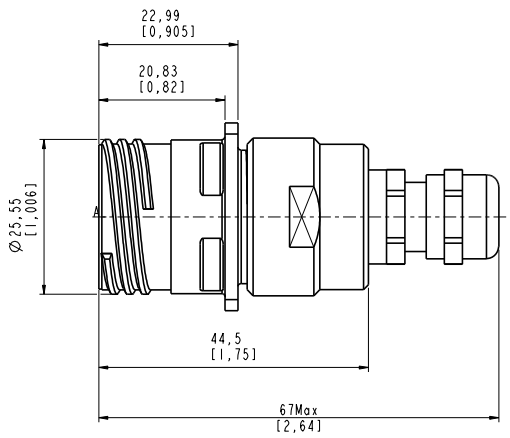
Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 2 - Metal backshell

Part number type: **USBFTV 2 PE 2 X**



Part number type: **USBFTV 2 PEM 2 X**

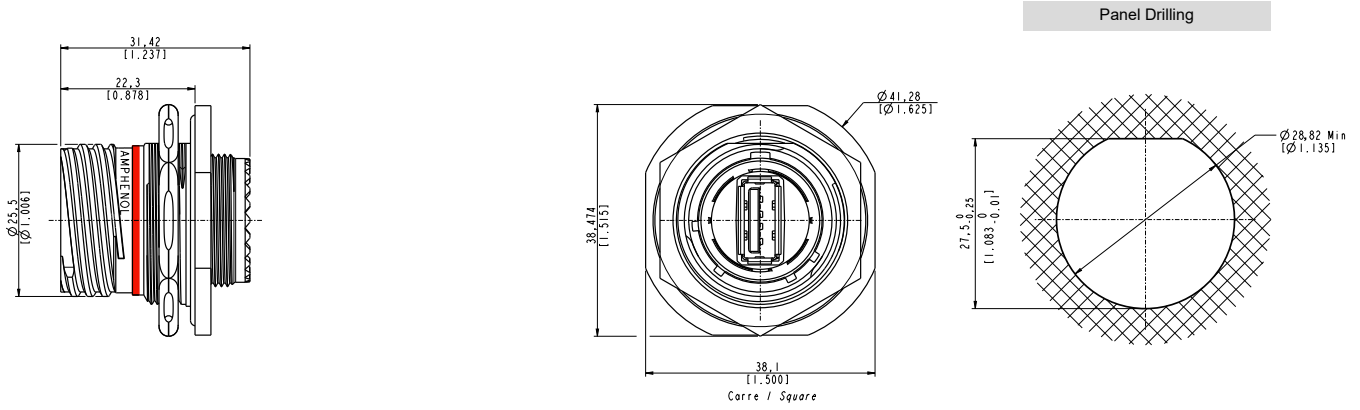


USBFTV™

Overall dimension

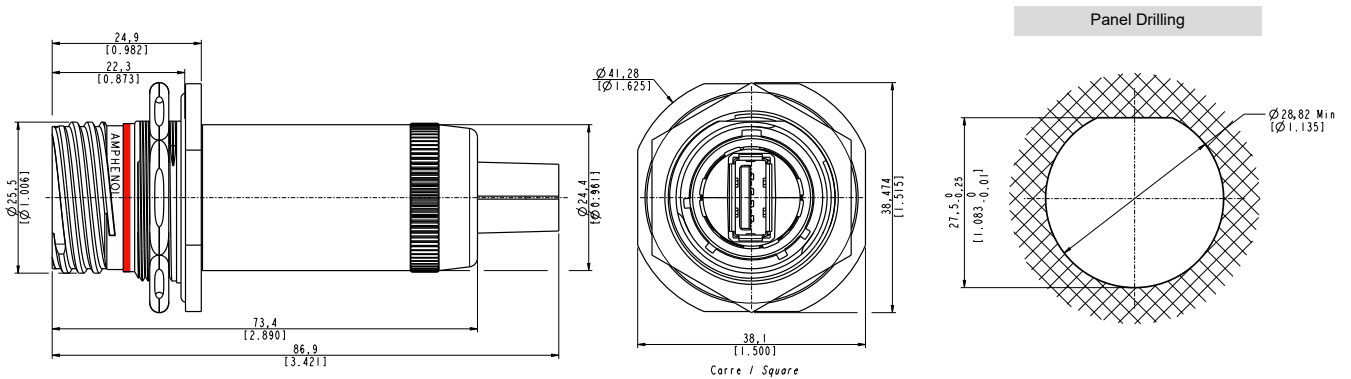
Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 1

Part number type: **USBFTV 7 1 X**



Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 1 - Metal backshell

Part number type: **USBFTV 7 PE 1 X**

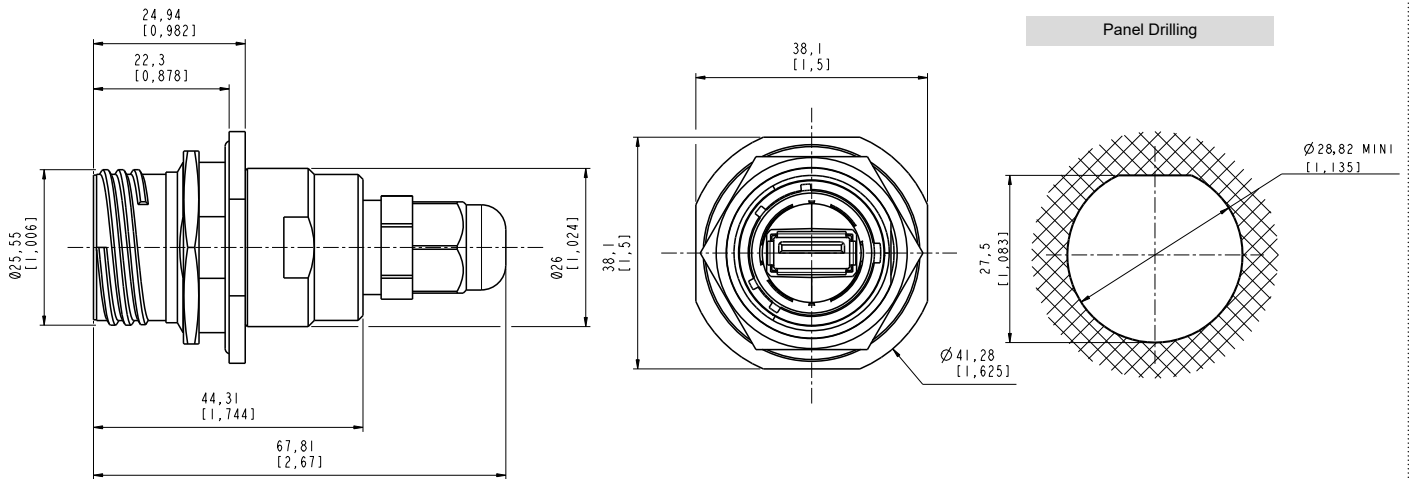


USBFTV™

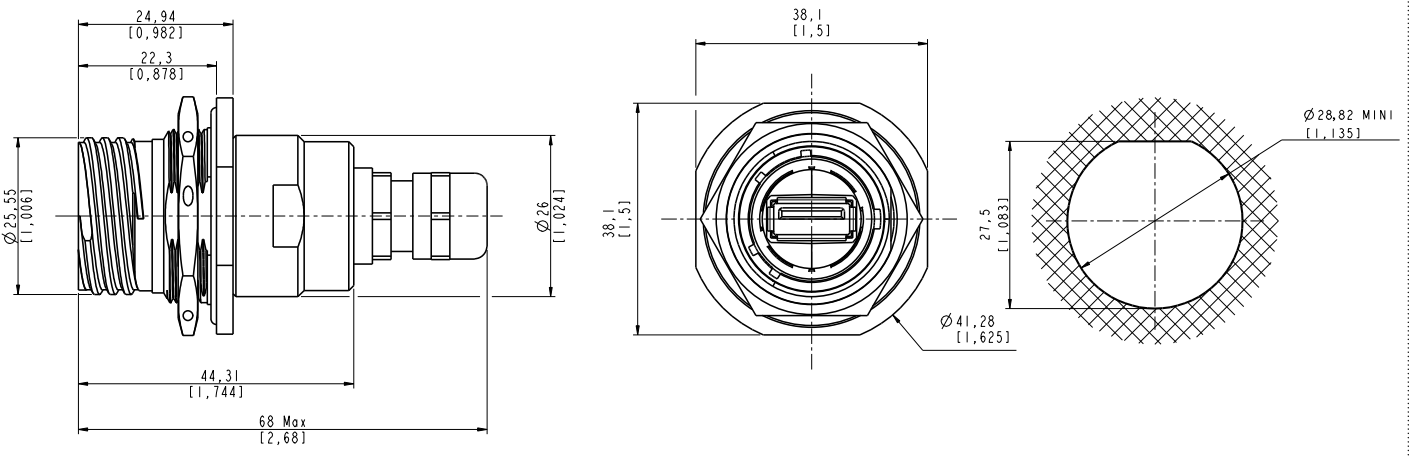
Overall dimension

Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 2 - Metal backshell

Part number type: **USBFTV 7 PE 2 X**



Part number type: **USBFTV 7 PEM 2 X**



USBFTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

Description



The transversally sealed receptacle is in all aspect equivalent to the standard and in addition, is improved with compound at the rear of the receptacle. This will prevent the sealing of the receptacle when unmated with his plug or protective cap.

The hermetic solution, as the transversally sealed one, is compounded at the rear of the receptacle. Helium leakage is less than $1.10 \cdot 10^{-6} \text{ cm}^3$ per second [0.1 micron cubit ft per hour] at one bar [15 psi] pressure differential. The test is performed on all hermetic receptacles.

Main features

MAIN CHARACTERISTICS

- Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15
- 2 mechanical coding/polarization possibilities by the user (receptacle insert rotation)
- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- USBFTV™ plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 minimum

DATA TRANSMISSION

- USB-A
- USB specification 2.0
- Data rate: up to 480 Mb/s for high speed USB

ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h with olive drab cadmium
 - 500 h with black zinc nickel ✓
 - 1000 h with marine bronze shell ✓
- Fire retardant / Low smoke: UL94 V0 and EN45545
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06 > weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Temperature range: - 40°C / +85°C

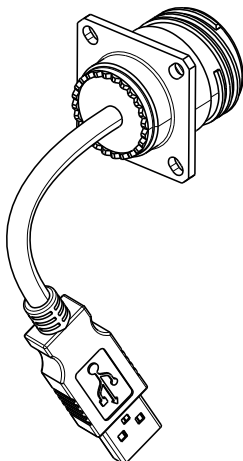
APPLICATIONS

- Battlefield communication systems
- C5ISR
- Data acquisition and transmission in harsh environment
- Navy
- Rail Mass Transit
- Industrial process control
- Robotics
- CNC machines
- Oil & Gas

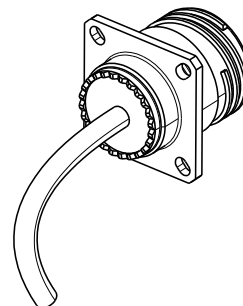
How to order : Please refer to page 90

Back terminations

USB cable end type A



USB cable end type «OPEN»



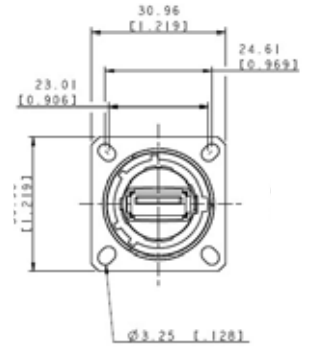
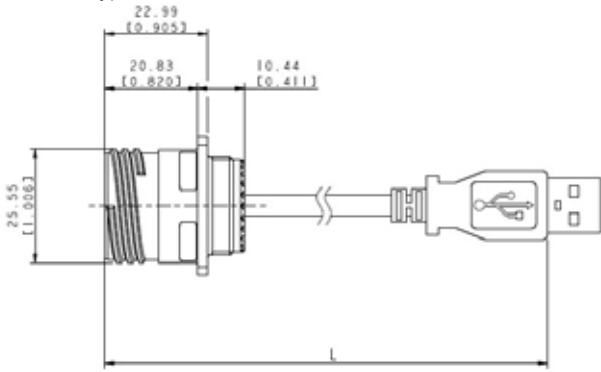
✓: RoHS compliant

USBFTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

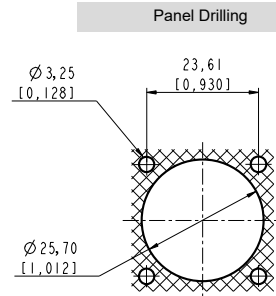
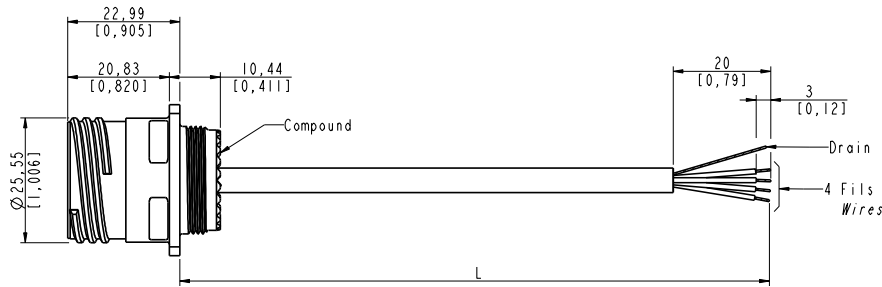
Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - USB-A or Open cordset

Part number type: **USBFTV 2 SA 2 X XX A**

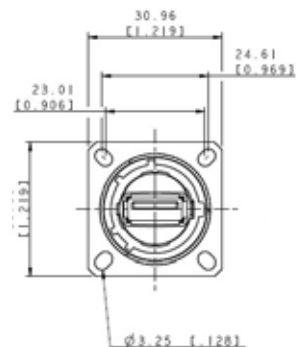
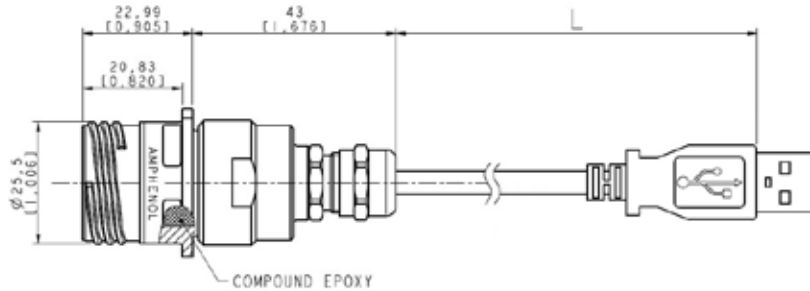


Part number type: **USBFTV 2 SA 2 X XX OPEN**

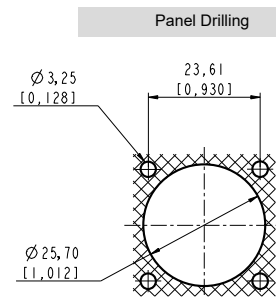
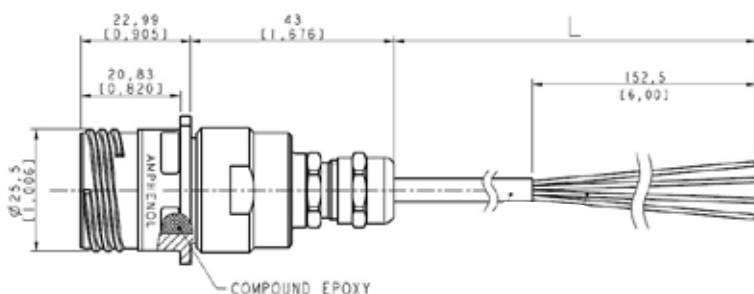


Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - USB-A or Open cordset

Part number type: **USBFTV 2 PE SA 2 X XX A**
USBFTV 2 PEM SA 2 X XX A



Part number type: **USBFTV 2 PE SA 2 X XX OPEN**
USBFTV 2 PEM SA 2 X XX OPEN

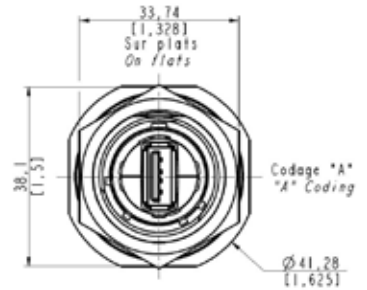
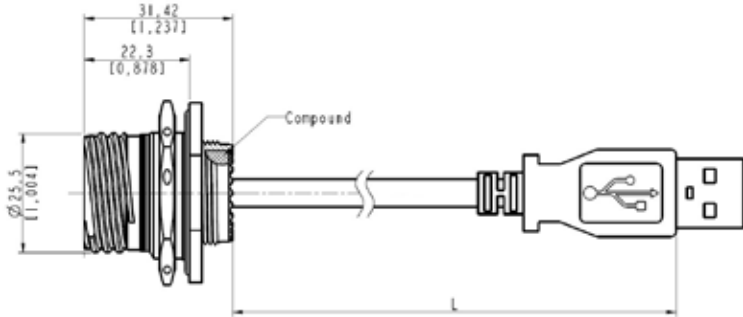


USBFTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

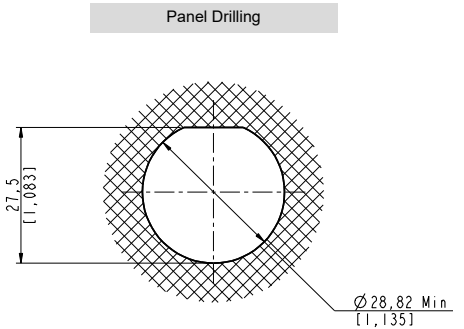
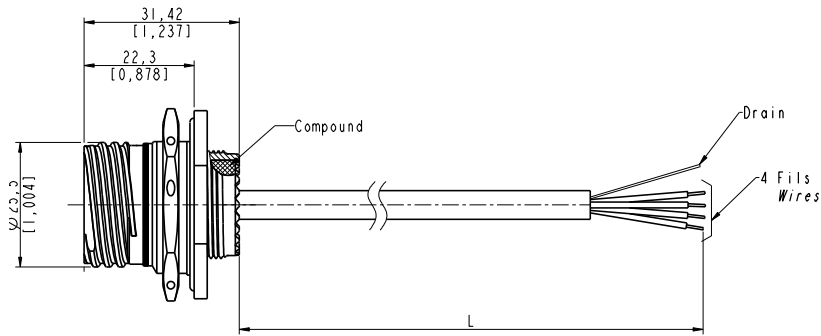
Overall dimension

Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - USB-A or Open cordset

Part number type: **USBFTV 7 SA 2 X XX A**

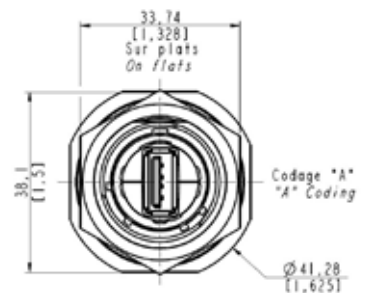
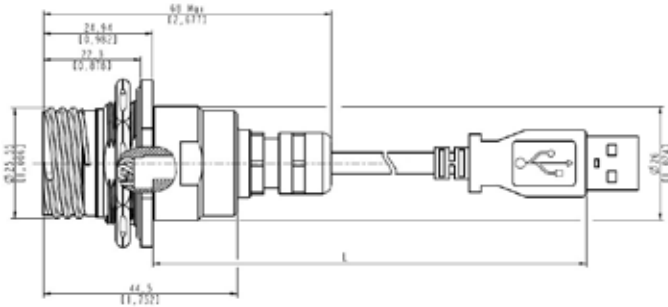


Part number type: **USBFTV 7 SA 2 X XX OPEN**

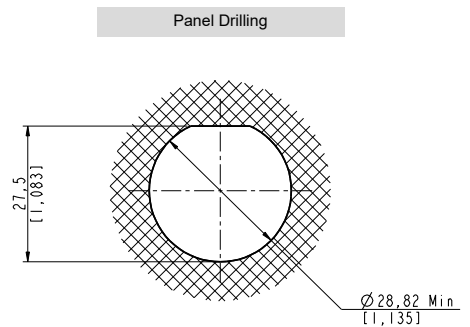
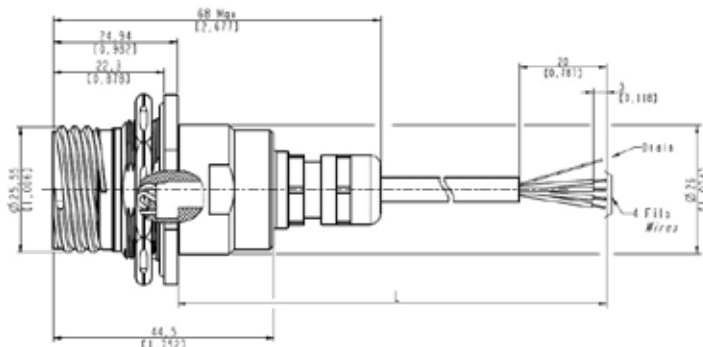


Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - USB-A or Open cordset

Part number type: **USBFTV 7 PE SA 2 X XX A**
USBFTV 7 PEM SA 2 X XX A



Part number type: **USBFTV 7 PE SA 2 X XX OPEN**
USBFTV 7 PEM SA 2 X XX OPEN

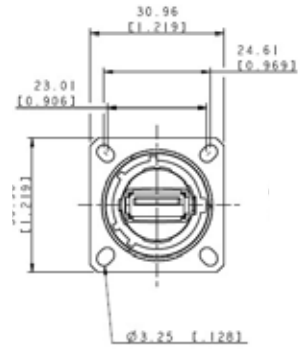
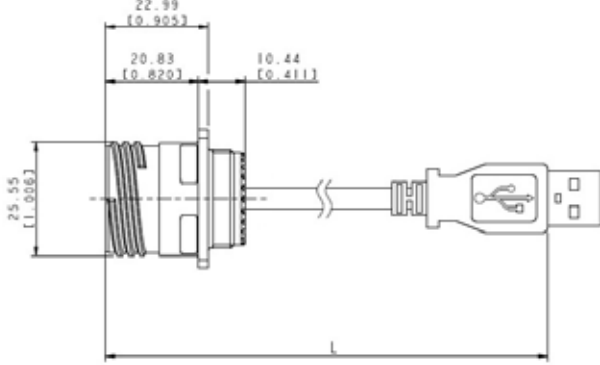


USBFTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

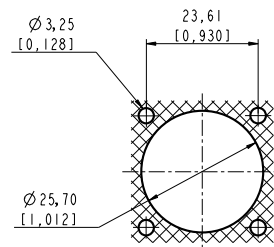
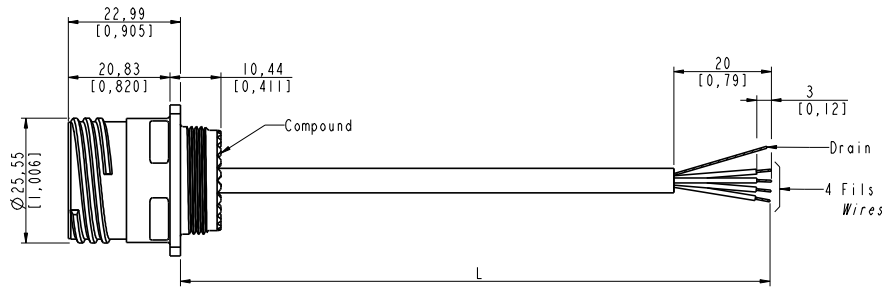
Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2- USB-A or Open cordset

Part number type: **USBFTV 2 HA 2 X XX A**

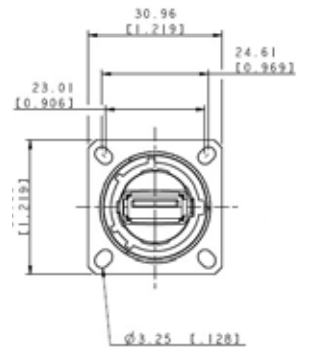
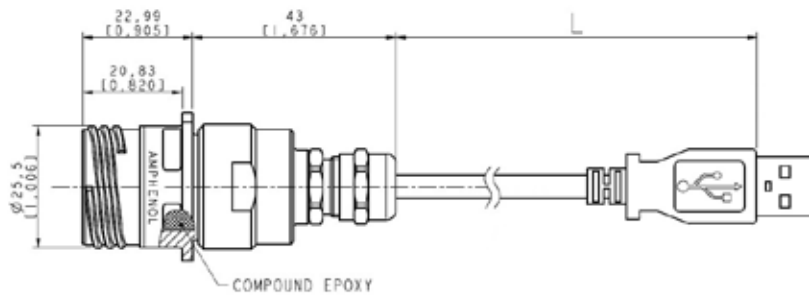


Part number type: **USBFTV 2 HA 2 X XX OPEN**

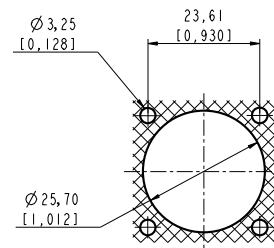
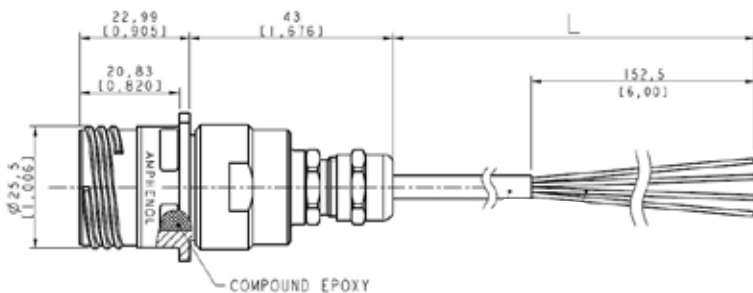


Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Metal backshell - USB-A or Open cordset

Part number type: **USBFTV 2 PE HA 2 X XX A**
USBFTV 2 PEM HA 2 X XX A



Part number type: **USBFTV 2 PE HA 2 X XX OPEN**
USBFTV 2 PEM HA 2 X XX OPEN

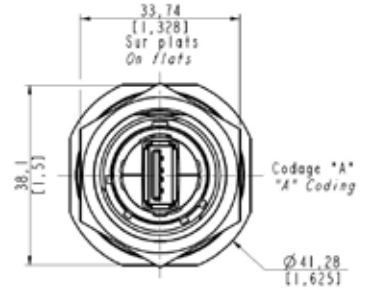
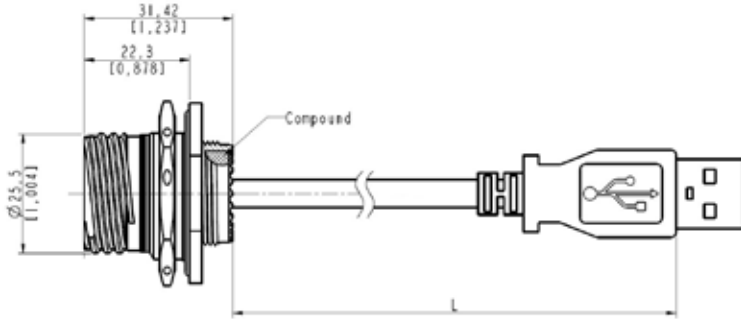


USBFTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

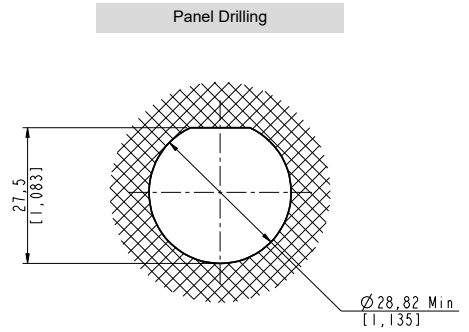
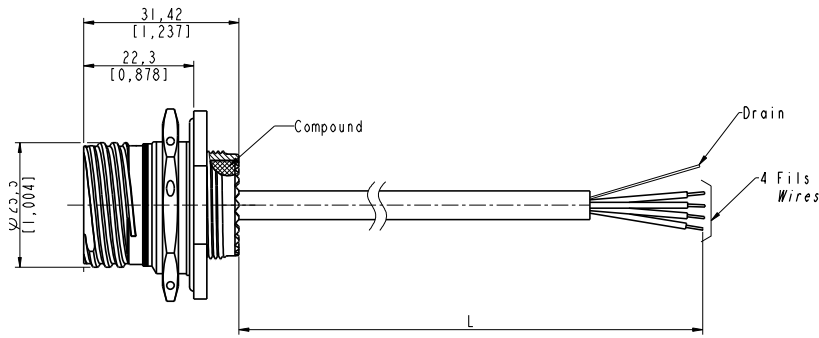
Overall dimension

Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - USB-A or Open cordset

Part number type: **USBFTV 7 HA 2 X XX A**

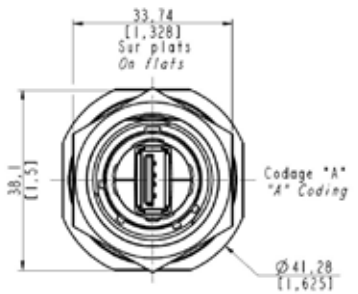
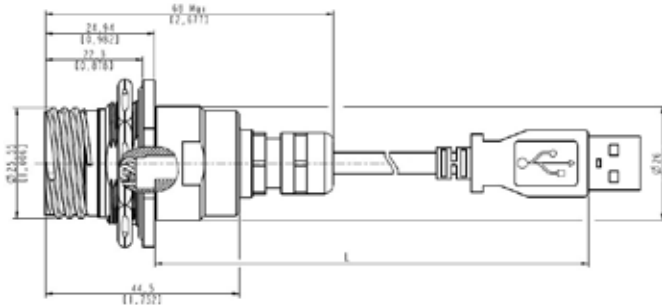


Part number type: **USBFTV 7 HA 2 X XX OPEN**

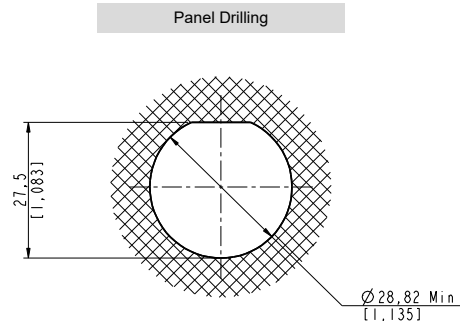
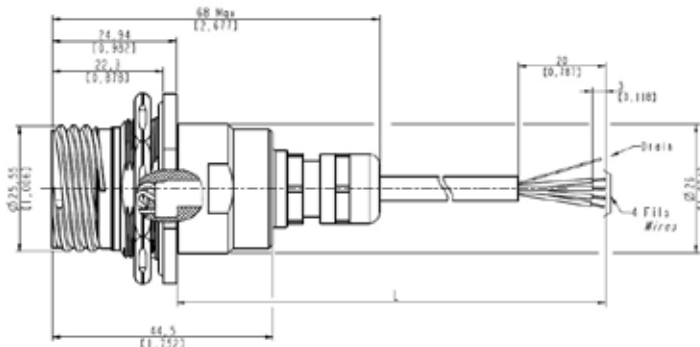


Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Metal backshell - USB-A or Open cordset

Part number type: **USBFTV 7 PE HA 2 X XX A**
USBFTV 7 PEM HA 2 X XX A



Part number type: **USBFTV 7 PE HA 2 X XX OPEN**
USBFTV 7 PEM HA 2 X XX OPEN



USBFTV™ - STAND OFF RECEPTACLE

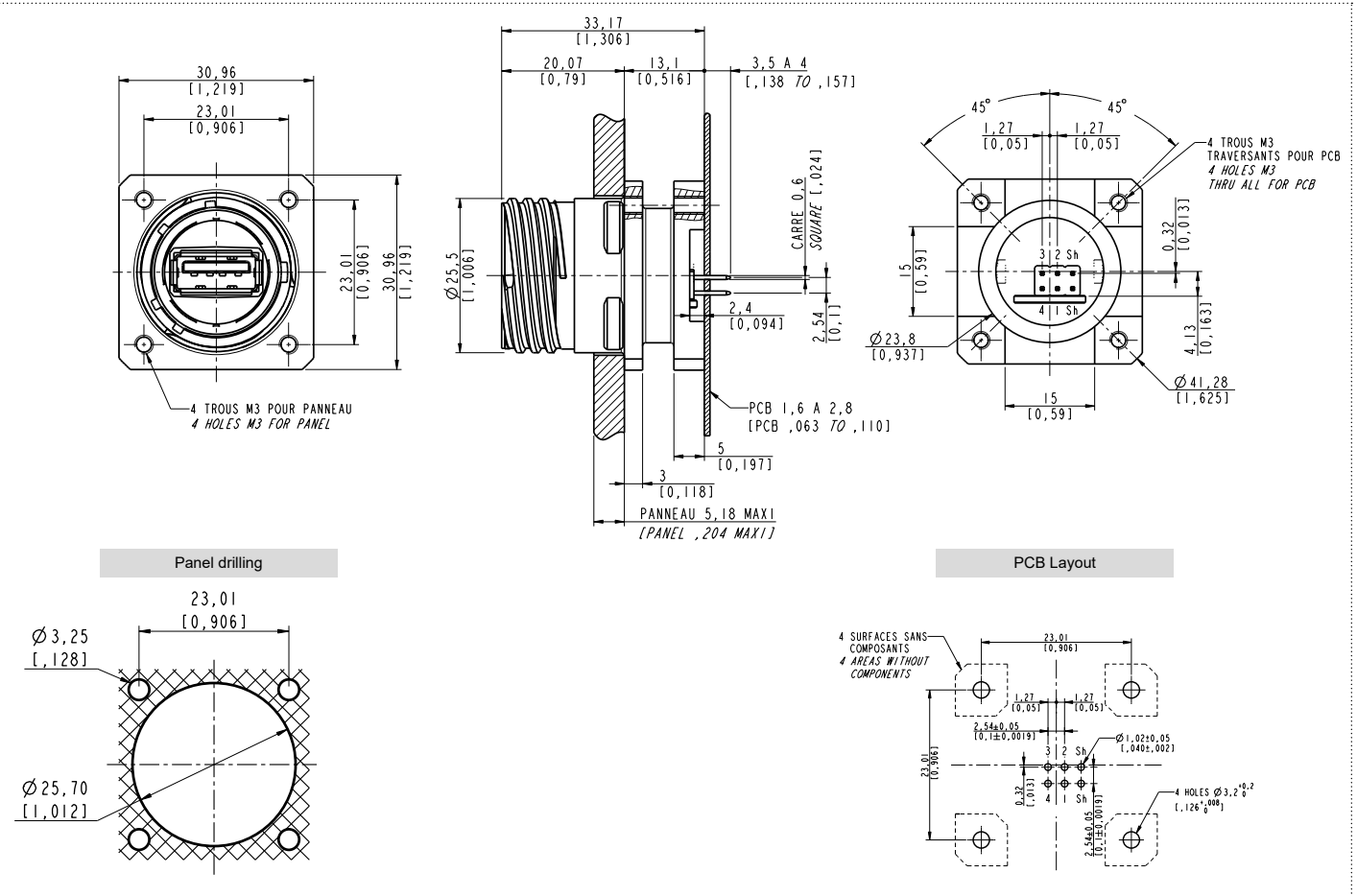


Description

This enhanced design allows you to mount the connector shell directly on your PC board. Soldering your contacts directly on the board will help to save you a lot of space inside of your system. As this double-flange of this connector is directly fixed on the board, mechanical stresses are absorbed by the shell and not the contacts. In addition to this benefit, the sealing is improved by the compounded receptacle.

Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - PC Tails contacts



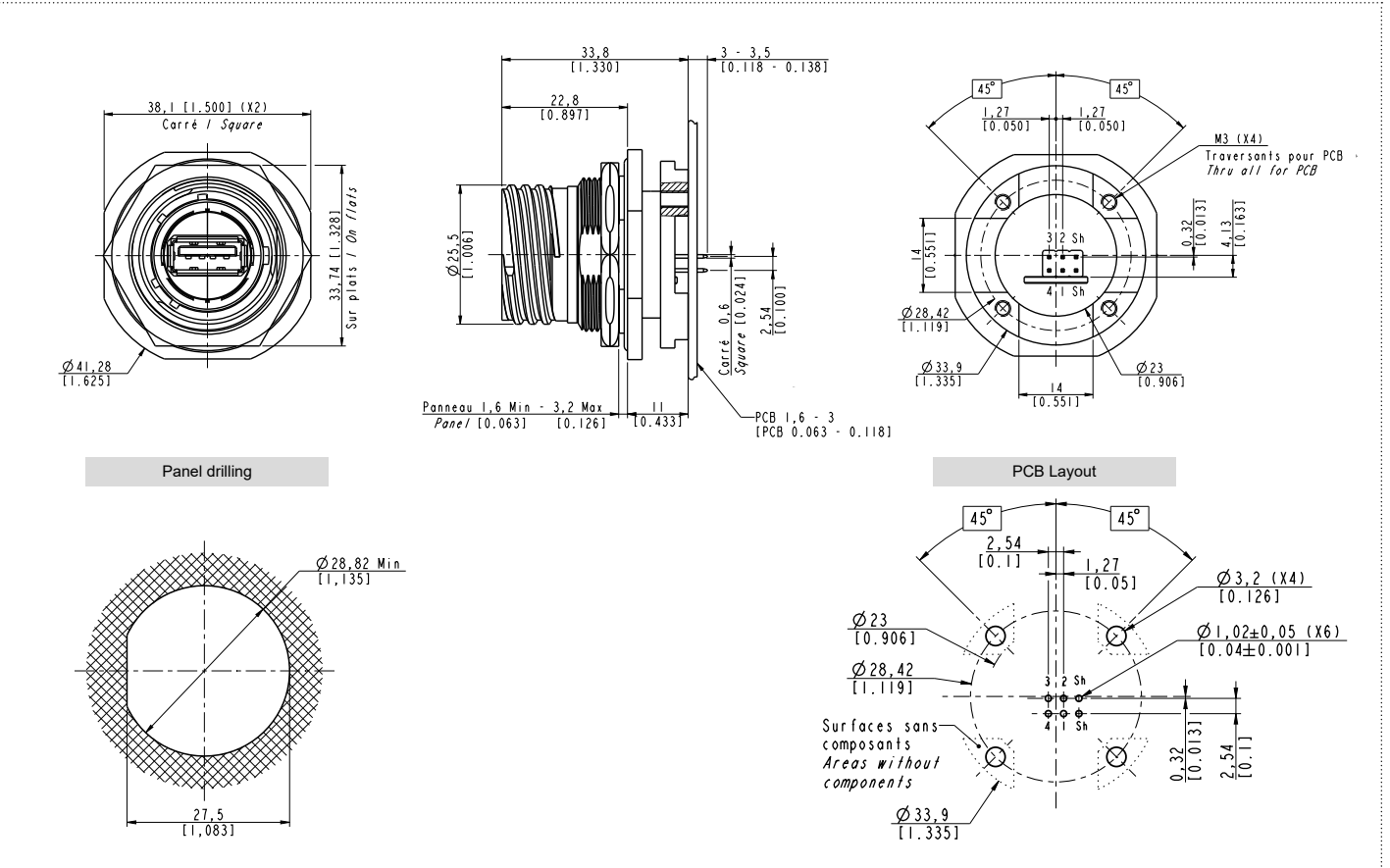
Part number for coding A	Part number for coding B	Plating
USBFTV 2S A 5 N F459	USBFTV 2S B 5 N F459	Nickel ✓
USBFTV 2S A 5 G F459	USBFTV 2S B 5 G F459	Olive drab cadmium
USBFTV 2S A 5 ZN F459	USBFTV 2S B 5 ZN F459	Black zinc nickel ✓

✓: RoHS compliant

USBFTV™ - STAND OFF RECEPTACLE

Overall dimension

Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - PC Tails contacts



Part number for coding A	Part number for coding B	Plating
USBFTV 7 SA 5 N F459	USBFTV 7S B 5 N F459	Nickel ✓
USBFTV 7 SA 5 G F459	USBFTV 7S B 5 G F459	Olive drab cadmium
USBFTV 7 SA 5 ZN F459	USBFTV 7S B 5 ZN F459	Black zinc nickel ✓

✓: RoHS compliant

USBFTV™ - THROUGH-BULKHEAD RECEPTACLE

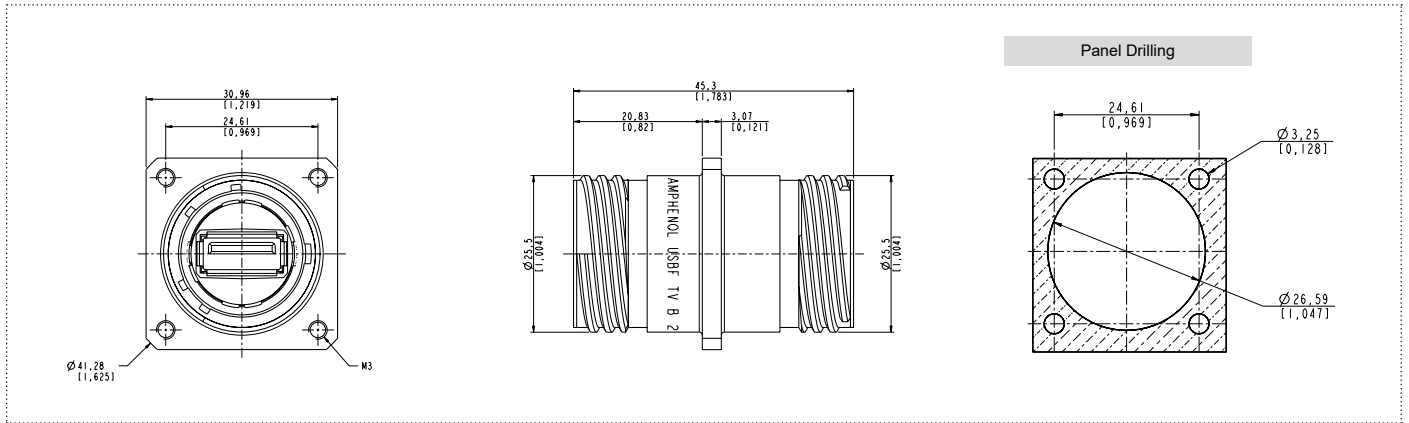


Description

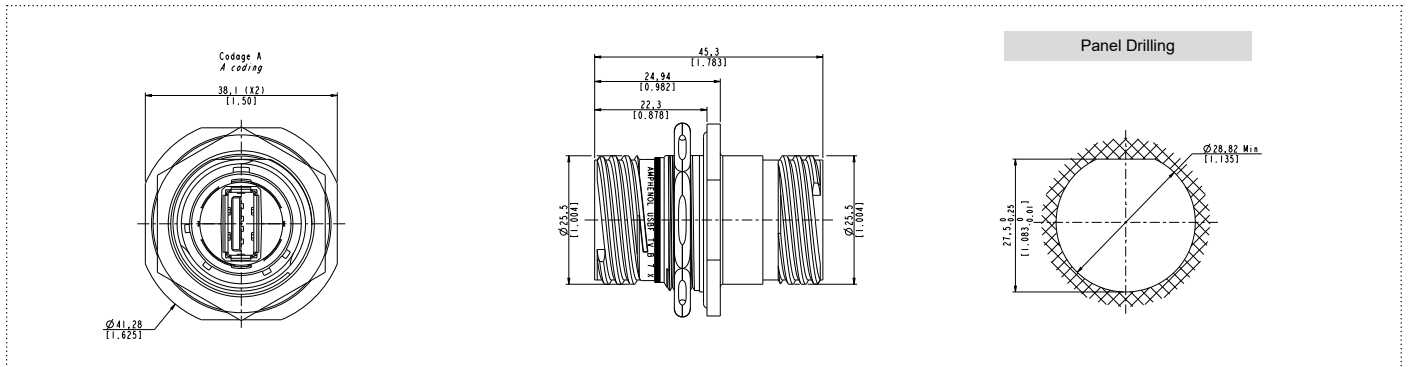
The USBFTV™ Through-bulkhead is a double-ended receptacle that enables you to connect two USBFTV plugs on both sides of your panel. In your system, it provides you the best protection and remains very easy to assemble.

Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2



Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7



Part number for square flange receptacle	Part number for Jam nut receptacle	Plating
USBFTV B 2 N	USBFTV B 7 N	Nickel ✓
USBFTV B 2 G	USBFTV B 7 G	Olive drab cadmium
USBFTV B 2 ZN	USBFTV B 7 ZN	Black zinc nickel ✓

✓: RoHS compliant

USB3.0
USB2.0
Cables and cordsets
Adapters and access points
Rugged electronics
Accessories
Assembly instructions
How to order

USBFTV™ - RECEPTACLE WITH 360° EMI BACKSHELL

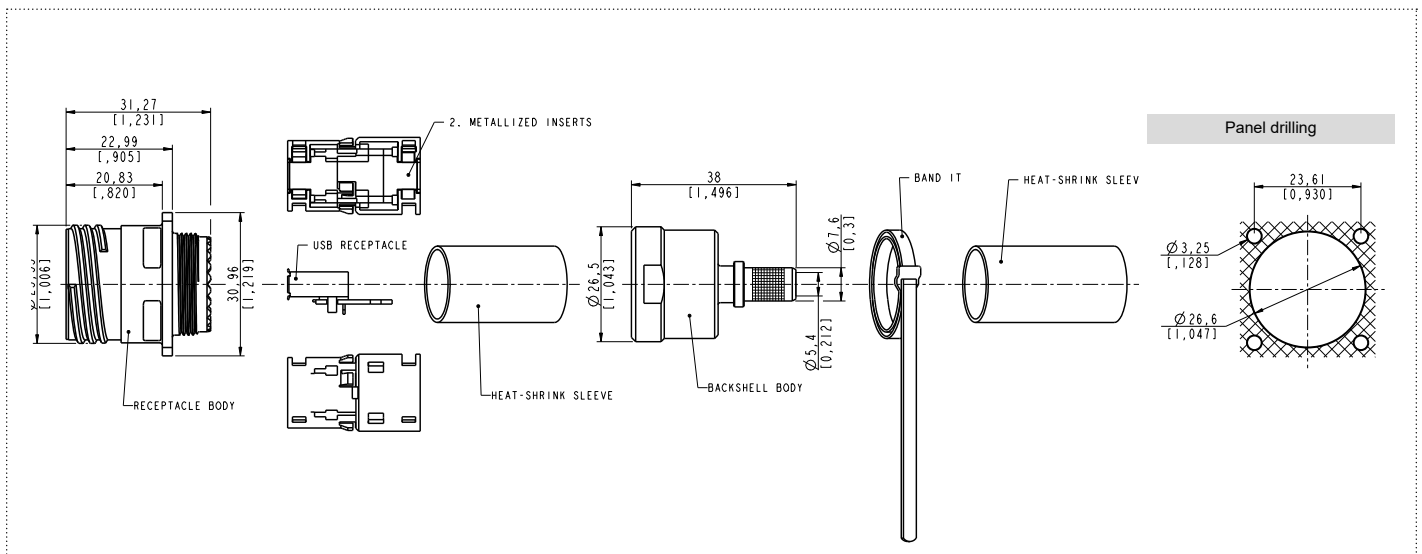


Description

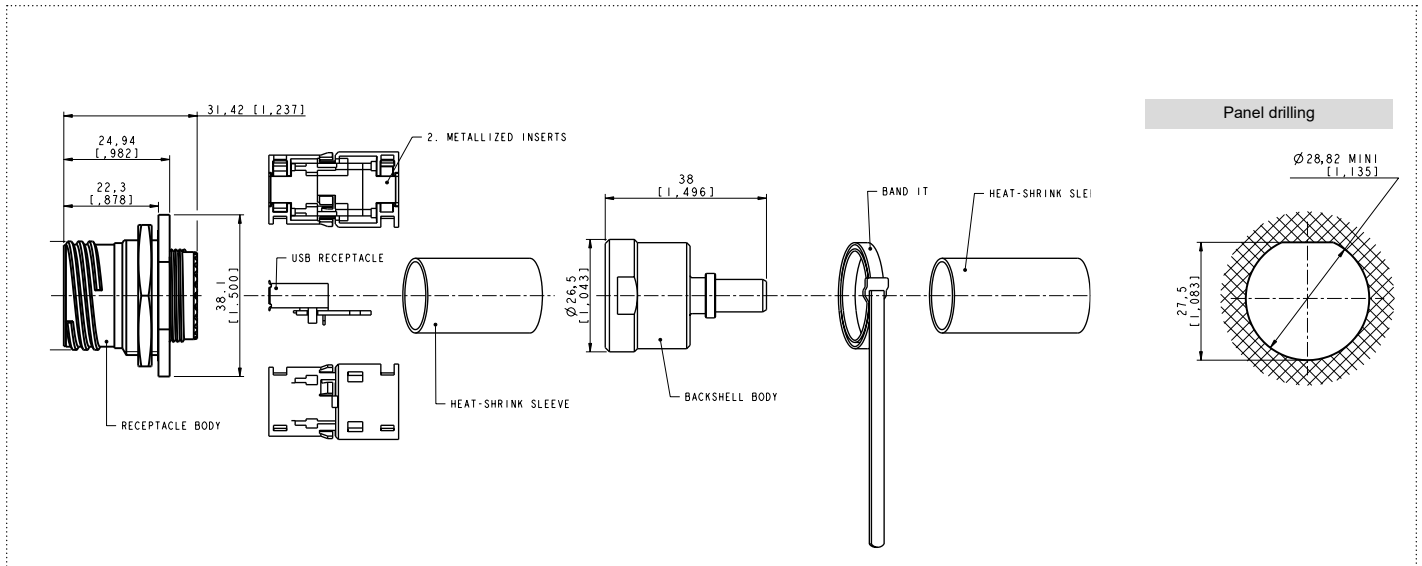
This USBFTV™ kit includes all components necessary to build up a totally 360° EMI shielded receptacle. This kit is mainly composed of an 360° backshell and the USB receptacle with PCB with 4 tinned holes for solder termination. With this receptacle kit provided without cable, you have to solder the cable on the PCB. You can find below, wires and shielding wire cabling specifications. We recommend to use our reinforced USB cable page 53. If you prefer to use your own cable, please check with us to see if your USB cable is compatible. In the case you need a complete 360° EMI shield receptacle already mounted with a define length of cable, please consult us.

Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back terminations type 2



Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back terminations type 2



Part number for Square flange receptacle	Part number for Jam nut receptacle	Plating
KIT40263	KIT40245	Nickel ✓
KIT40263G	KIT40245G	Olive drab cadmium
KIT40263ZN	KIT40245ZN	Black zinc nickel plating ✓

✓: RoHS compliant

USBFTV™ - ATEX ZONE 2



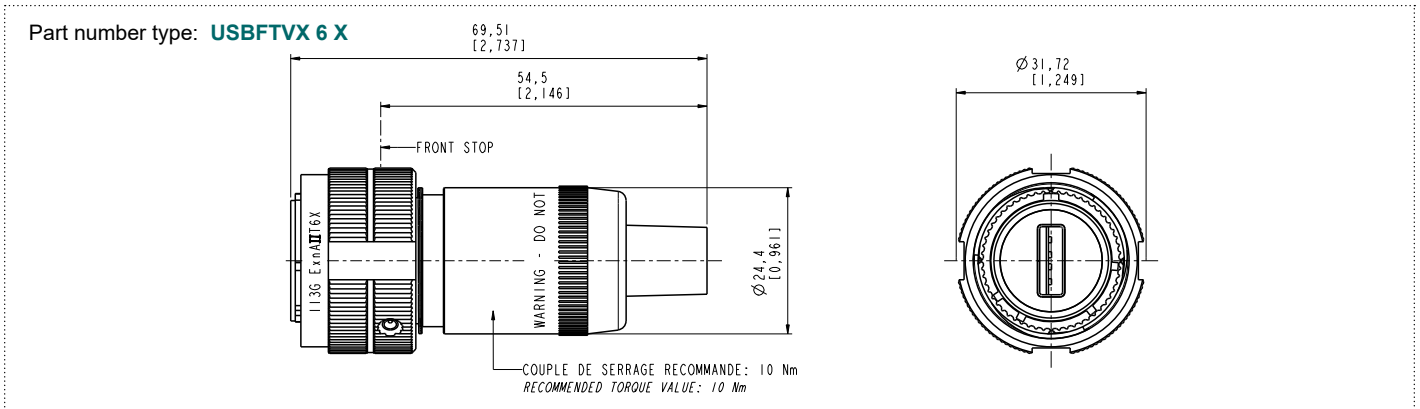
Description

USBFTVX connectors are the same as the standard USBFTV™, but in addition, they are certified for use in explosive environments. This range is fitted to be used in Atex zone 2 environments and 100% tested at 500V during 1 minute without sparking.

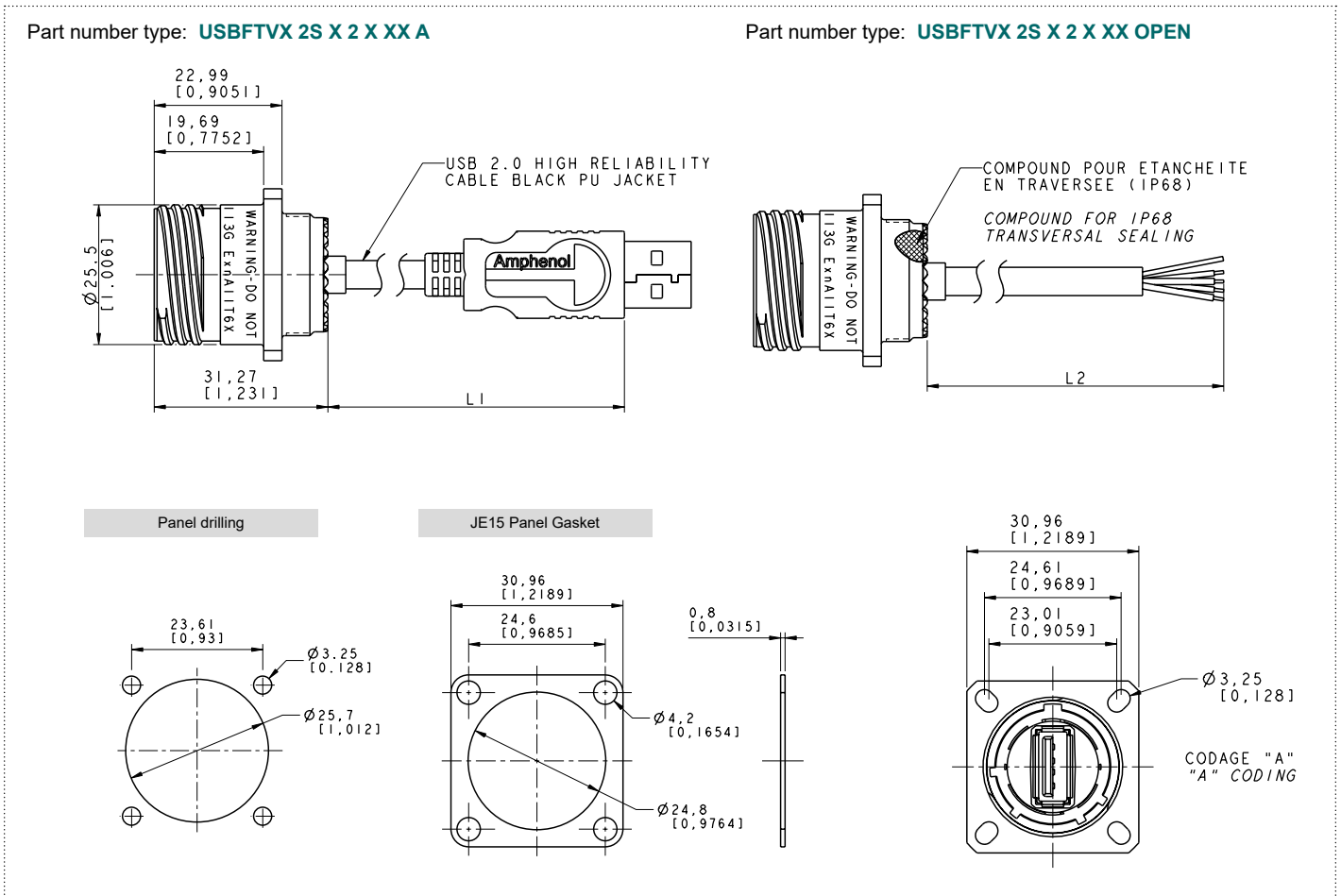
How to order : Please refer to page 91

Overall dimension

Plug - Shell type 6



Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - USB-A or Open cordset



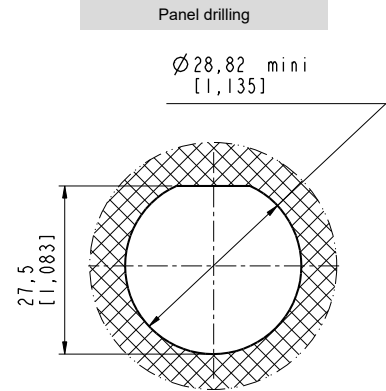
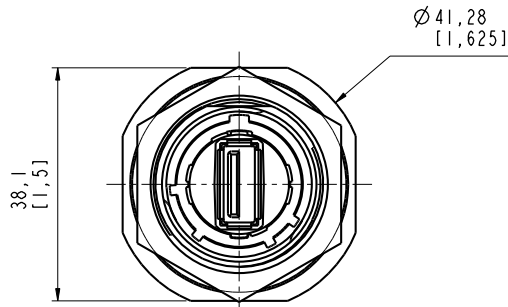
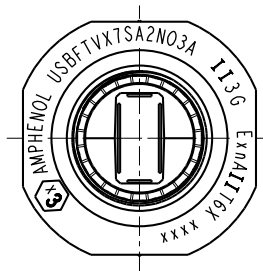
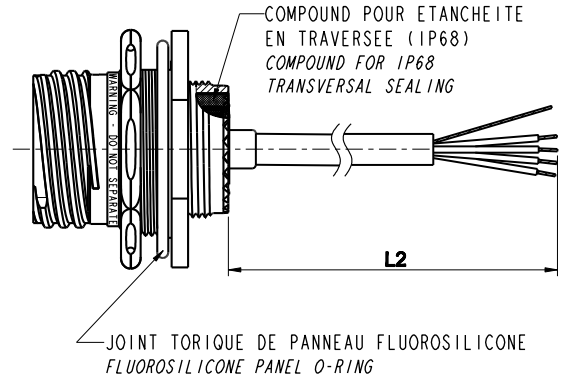
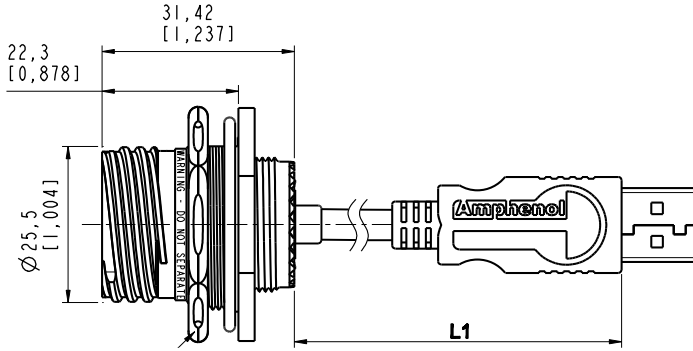
USBFTV™ - ATEX ZONE 2

Overall dimension

Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - USB-A or Open cordset

Part number type: **USBFTVX 7S X 2 X XX A**

Part number type: **USBFTVX 7S X 2 X XX OPEN**



USBBFTV



Description

USBBFTV is a complete ruggedized solution around USB2.0 Type-B standard using a Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) to connect the two plug and receptacle parts.

This solution allows you to insert a standard USB 2.0 cordset into a metallic plug which will protect it from shocks, dust and fluids. The assembly of this ruggedized plug doesn't require any tools and can be assembled easily in the field. Perfectly adapted to the USB2.0 standard, you have two coding possibilities to facilitate coupling when you have several receptacles on a panel.

The corresponding USBBFTV receptacle dedicated to be mounted on your panel enables you to reinforce and protect your system against leakage, shocks, vibrations and much more. This receptacle part is delivered with a defined coding when ordered but can be conveniently changed with our dedicated USBF ODE tool.

Main features

MAIN CHARACTERISTICS

- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15
- Plug retention in the receptacle: 100N in the axis
- Mating cycles: 500 minimum

DATA TRANSMISSION

- USB-B
- USB specification 2.0
- Data rate: up to 480 Mb/s for high speed USB

ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h with olive drab cadmium
 - 500 h with black zinc nickel ✓
 - 1000 h with marine bronze shell ✓
- Fire retardant / Low smoke: UL94 V0 and EN45545
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06 > weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Temperature range: - 40°C / +85°C

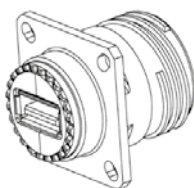
APPLICATIONS

- Battlefield communication systems
- C5ISR
- Data acquisition and transmission in harsh environment
- Navy
- Rail Mass Transit
- Industrial process control
- Robotics
- CNC machines
- Oil & Gas

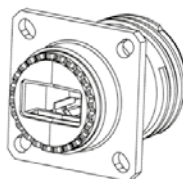
How to order : Please refer to page 92

Back terminations

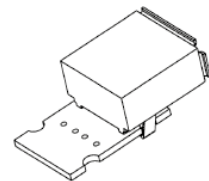
Type 1:
female USB-A



Type 2:
solder 4 Tinned holes to solder your cable



View of the PCB of the Type 2 version with
4 tinned holes for solder termination



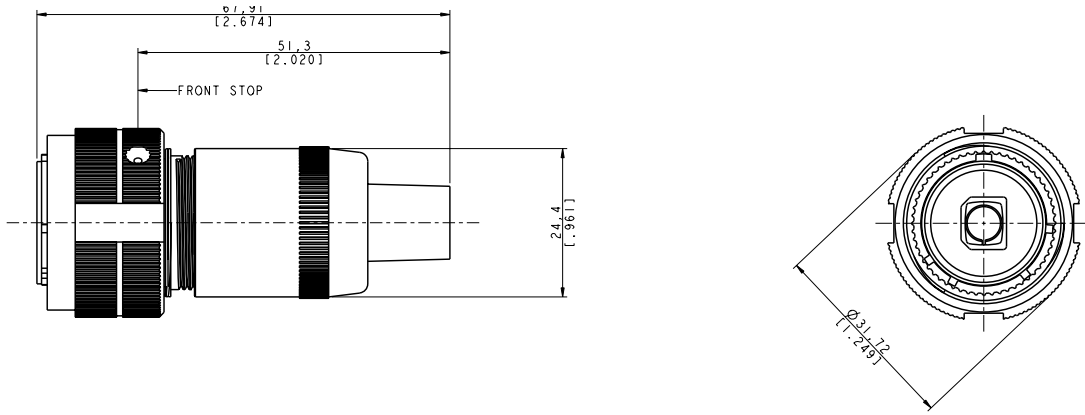
✓: RoHS compliant

USBBFTV

Overall dimension

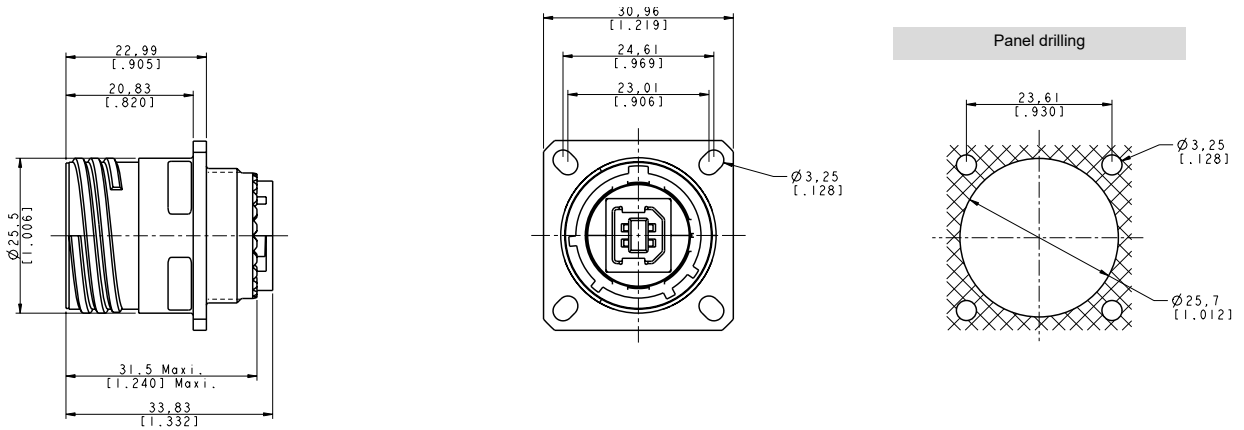
Plug - Shell type 6

Part number type: **USBBF TV 6 X**



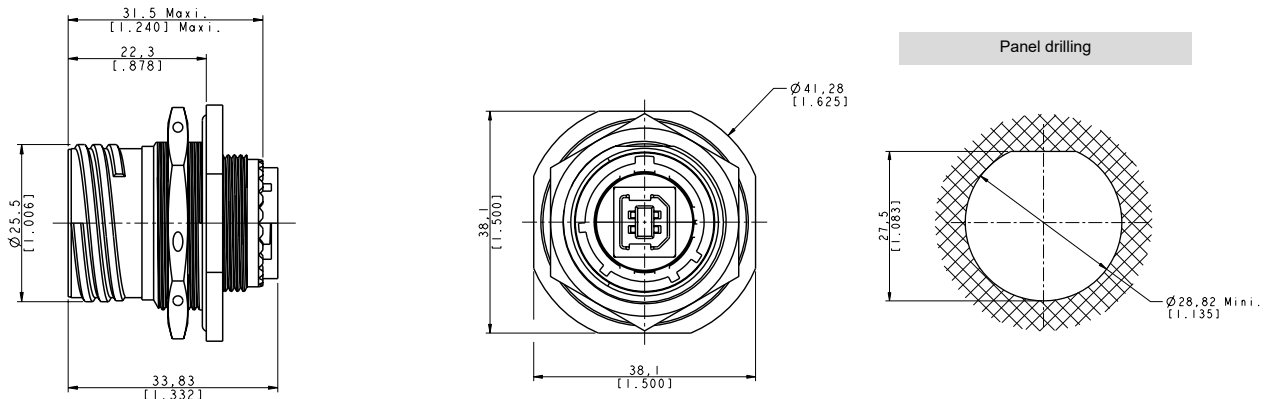
Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back terminations type 1

Part number type: **USBBF TV 2 X X**



Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back terminations type 1

Part number type: **USBBF TV 7 X X**

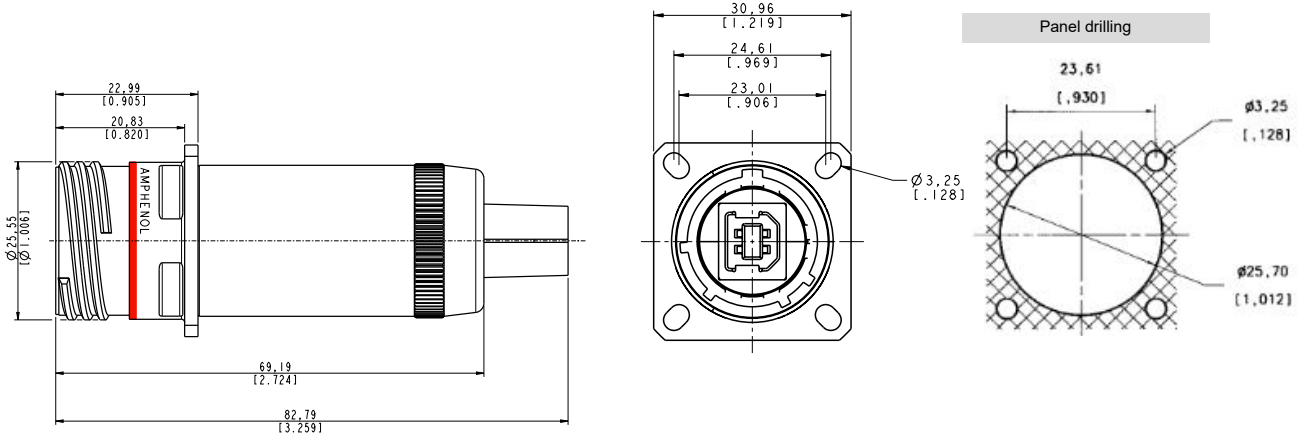


USBBFTV

Overall dimension

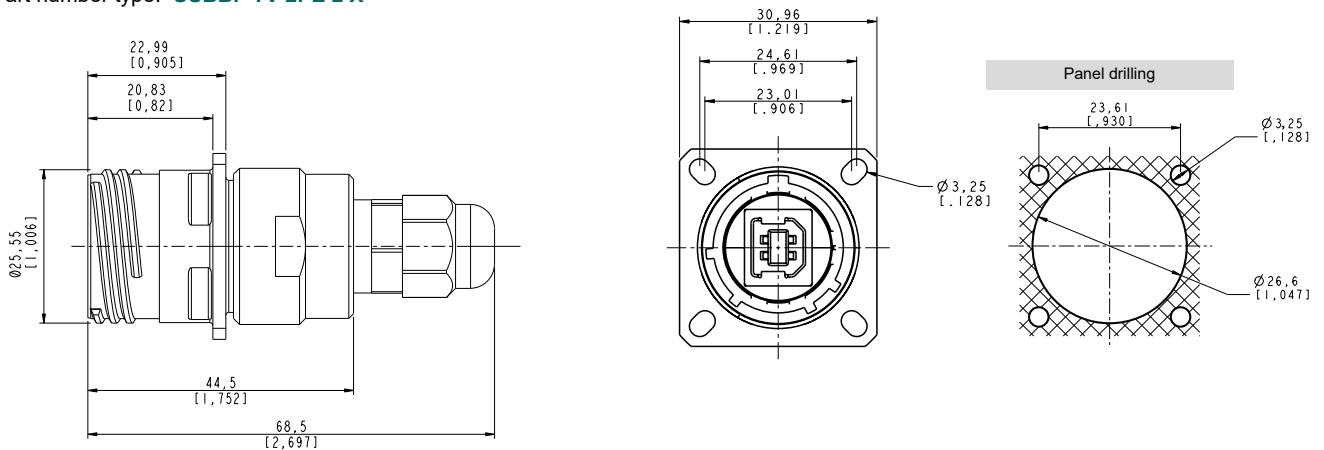
Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 1 - Metal backshell

Part number type: **USBBF TV 2PE 1 X**

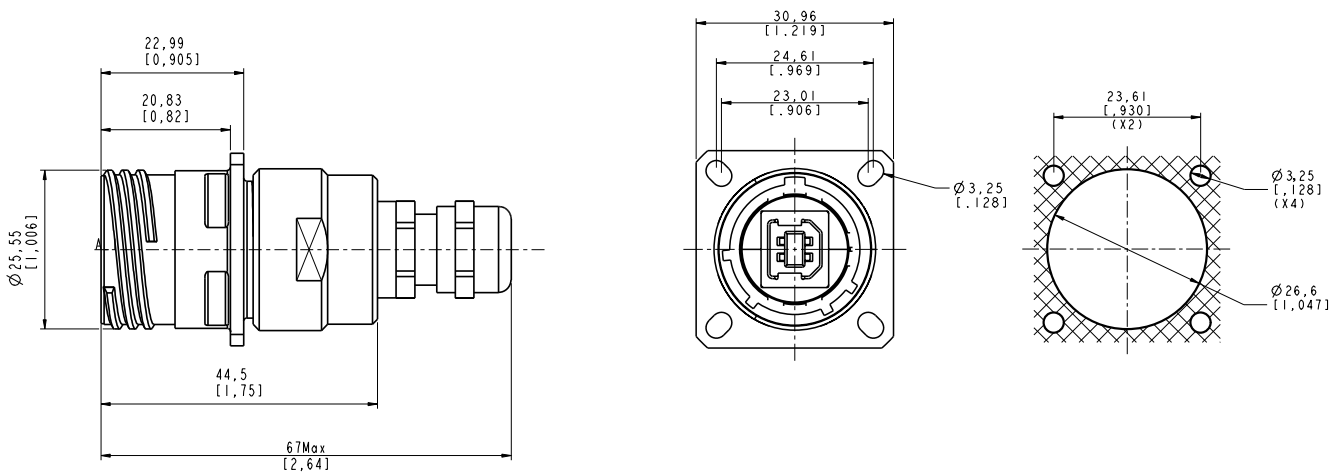


Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - Back termination type 2 - Metal backshell

Part number type: **USBBF TV 2PE 2 X**



Part number type: **USBBF TV 2PEM 2 X**

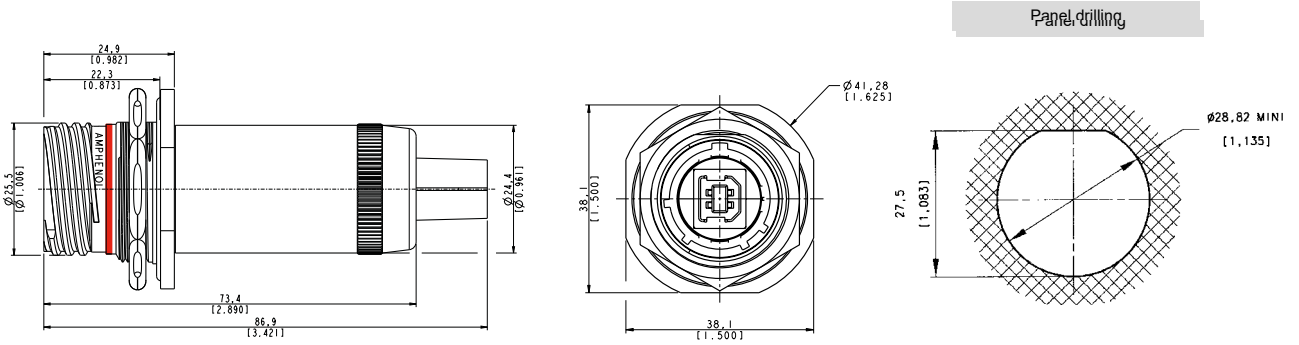


USBBFTV

Overall dimension

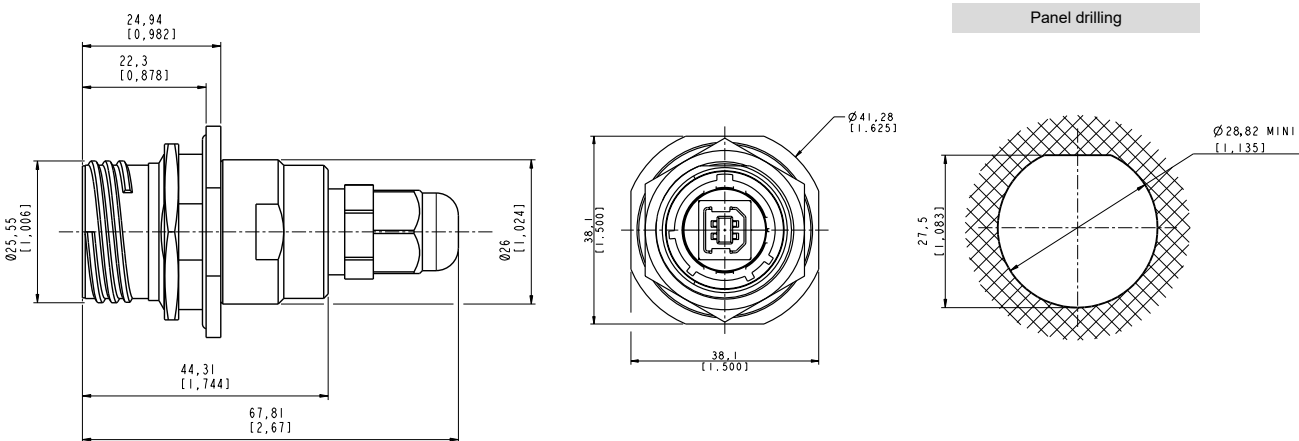
Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 1 - Metal backshell

Part number type: **USBBF TV 7PE 1 X**

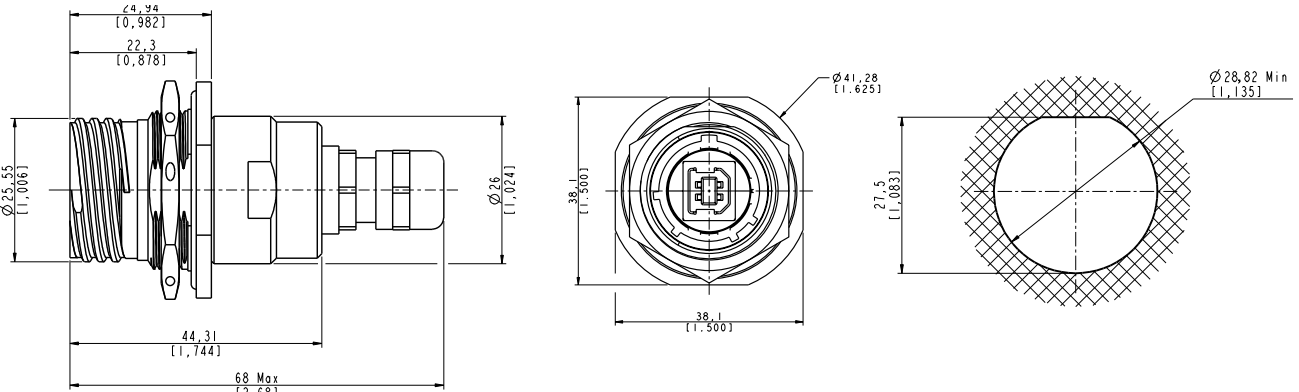


Receptacle - Jam nut receptacle - Hexagonal nut mounting - Shell type 7 - Back termination type 2 - Metal backshell

Part number type: **USBBF TV 7PE 2 X**



Part number type: **USBBF TV 7PEM 2 X**



USBBFTV - TRANSVERSALLY SEALED RECEPTACLE



Description

The transversally sealed receptacle is in all aspects equivalent to the standard and in addition, is improved with compound at the rear of the receptacle. This will prevent the sealing of the receptacle when unmated with his plug or protective cap.

The hermetic solution, as the transversally sealed one is compounded at the rear of the receptacle. Helium leakage is less than $1.10 \cdot 10^{-6} \text{ cm}^3$ per second [0.1 micron cubit ft per hour] at one bar [15 psi] pressure differential. This test is performed on all of the hermetic receptacles.

Main features

MAIN CHARACTERISTICS

- Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15
- 2 mechanical coding/polarization possibilities by the user (receptacle insert rotation)
- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- USBFTV plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 minimum

DATA TRANSMISSION

- USB-B
- USB specification 2.0
- Data rate: up to 480 Mb/s for high speed USB

ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h with olive drab cadmium
 - 500 h with black zinc nickel ✓
 - 1000 h with marine bronze shell ✓
- Fire retardant / Low smoke: UL94 V0 and EN45545
- Vibrations: 10 - 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06 > weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Temperature range: - 40°C / +85°C

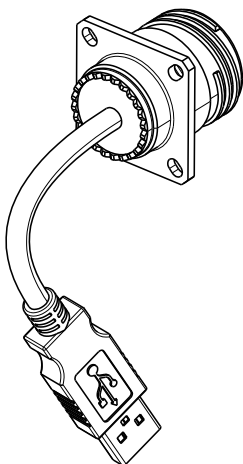
APPLICATIONS

- Battlefield communication systems
- C5ISR
- Data acquisition and transmission in harsh environment
- Navy
- Rail Mass Transit
- Industrial process control
- Robotics
- CNC machines
- Oil & Gas

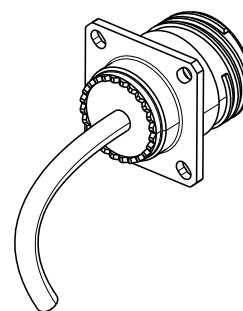
How to order : Please refer to page 93

Back terminations

USB cable end type A



USB cable type «OPEN»



✓: RoHS compliant

USBBFTV - STAND OFF RECEPTACLE

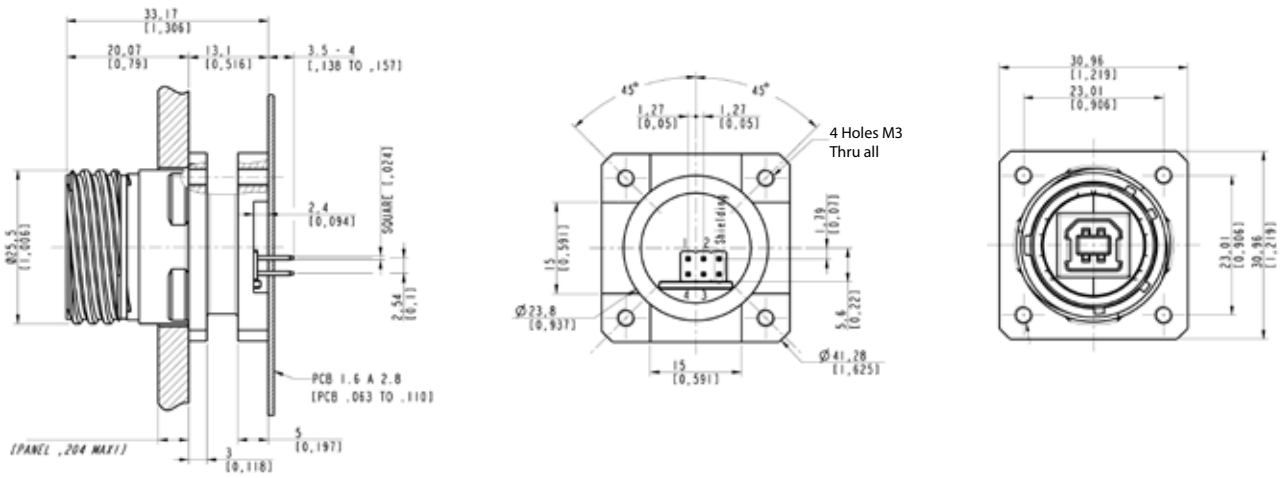


Description

The USBBFTV enhanced design allows you to mount the connector shell directly on the PC board. Soldering your contacts directly on the board saves you a lot of space inside of your system. As this double-flange of this connector is directly fixed on the board, mechanical stresses are absorbed by the shell and not the contacts. In addition to this benefit, the sealing is improved by the compounded receptacle.

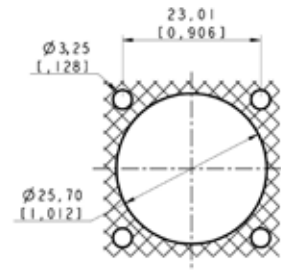
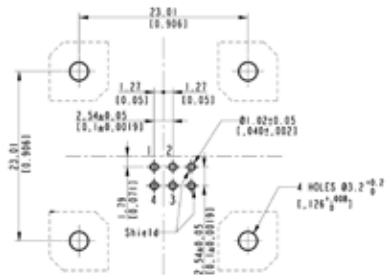
Overall dimension

Receptacle - Square flange receptacle - 4 mounting holes - Shell type 2 - PC Tails



PCB Layout

Panel drilling



Part number	Plating
USBBF TV 2 5 N F459	Nickel ✓
USBBF TV 2 5 G F459	Olive drab cadmium
USBBF TV 2 5 ZN F459	Black Zinc Nickel ✓

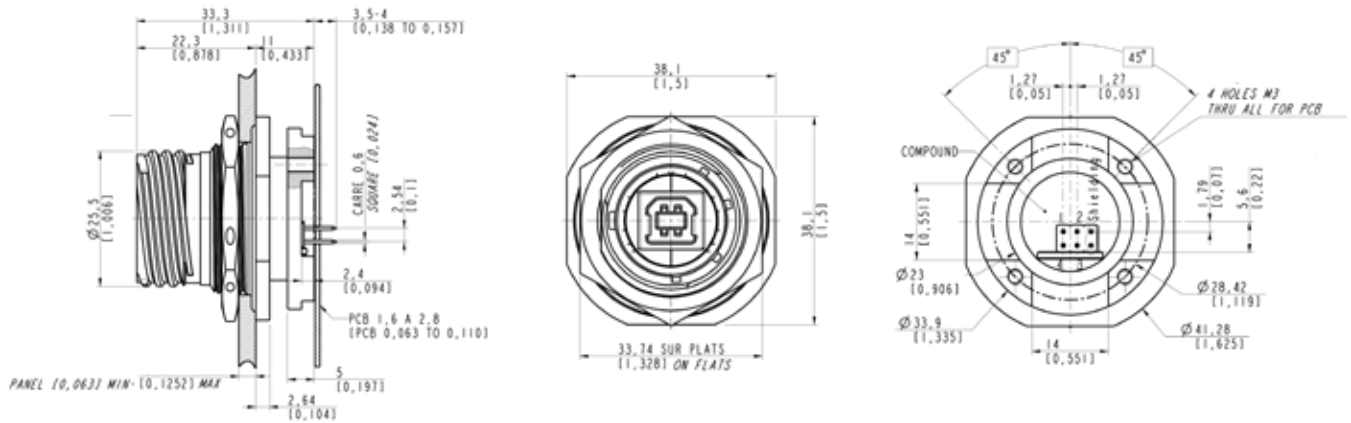
✓: RoHS compliant

USB3.0
USB2.0
Cables and cordsets
Adapters and access points
Rugged electronics
Accessories
Assembly instructions
How to order

USBBFTV - STAND OFF RECEPTACLE

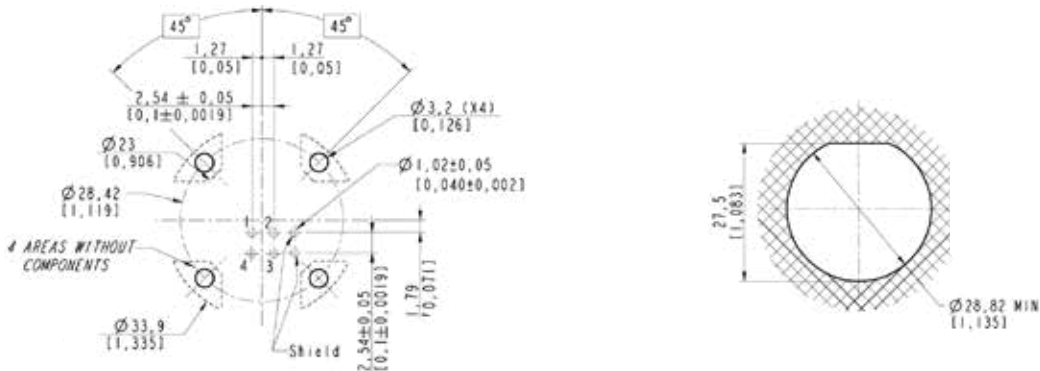
Overall dimension

Receptacle - Jam nut receptacle - Hex nut mounting - Shell type 7 - PC Tails



PCB Layout

Panel drilling



Part number

Plating

USBBF TV 7 5 N F459

Nickel ✓

USBBF TV 7 5 G F459

Olive drab cadmium

USBBF TV 7 5 ZN F459

Black Zinc Nickel ✓

✓: RoHS compliant

NOTES

Area with horizontal dotted lines for taking notes.

USB3.0

USB2.0

Cables and cordsets

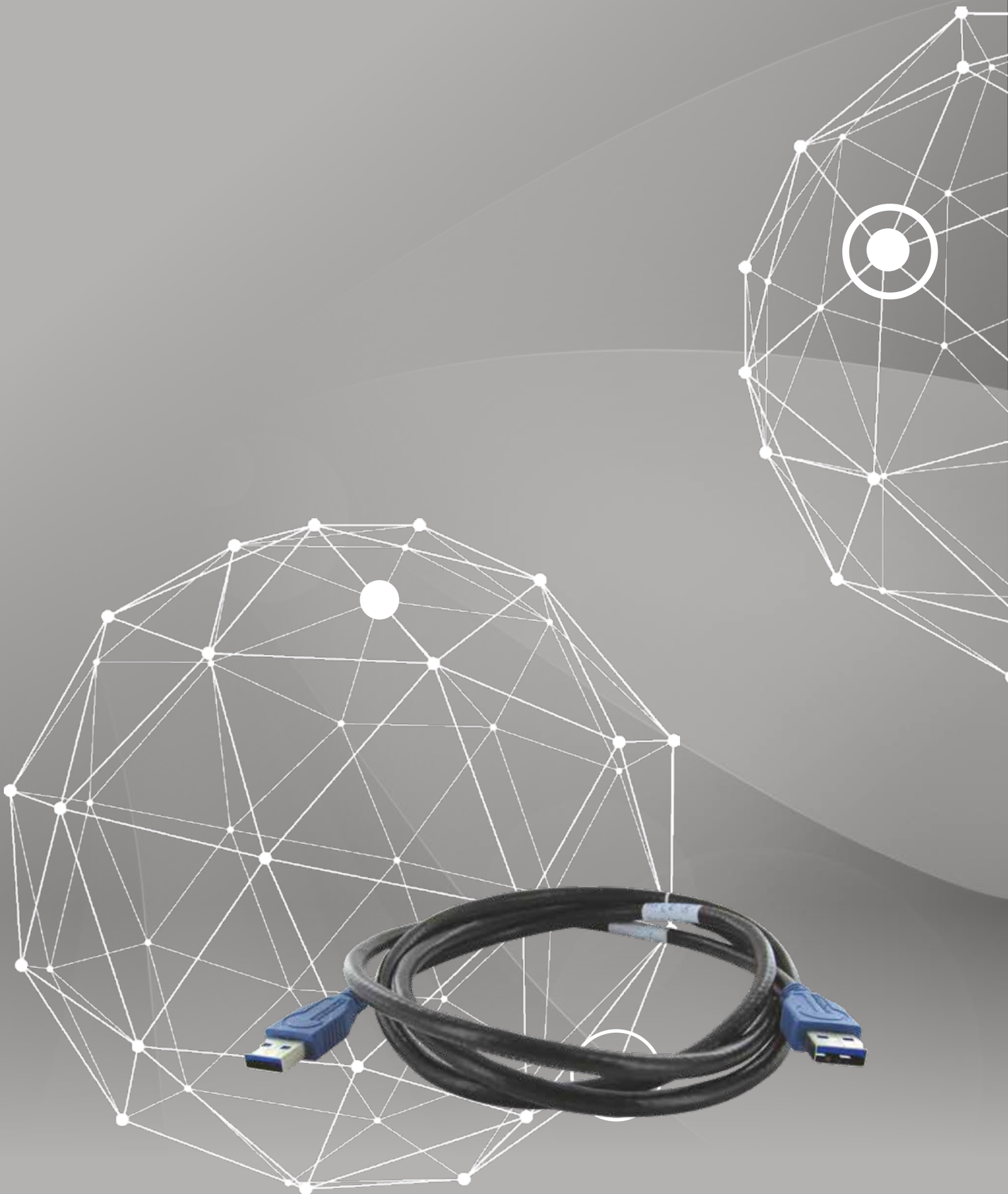
Adapters and access points

Rugged electronics

Accessories

Assembly instructions

How to order



CABLES AND CORDSETS



Table of contents

CABLES AND CORDSETS	53
USB3.2 Gen1 cable and cordset	54
USB2.0 cable and cordset	55

USB3.2 GEN1 CABLE AND CORDSET



Description

This USB3.2 Gen1 cable is specifically designed for fixed or deployable military or industrial applications. Can be ordered as cordset with USB-A at both end or as reel of 300m to be used for cabling activity. Its special polyurethane can withstand the harshest environment.

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 1 X Data Pair	Conductors	2 x 28 AWG Stranded tinned copper wire (Ø0,39mm)
	Insulation	Polyethylene (Ø0,73mm)
	Colors	Green and White
Power 1 X 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 1 X 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				
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	Resistance to microbial/fungus growth: MIL-STD-810G, method 508.6 = grade 1-2
Oil resistance acc. to 1584, sec. 480 (60°)	Min. bending radius allowed: repeated 10 X Ø single 5 X Ø
Flame retardant acc. to UL 1581, sec. 1090 (H)	Permissible temperature range for transport, installation and operating: -40°C up to 85°C
Flame retardant acc. to IEC 60332-1-2	
RoHS compliant (Directive 2011/65/EC)	Weight: 46 kg/km

How to order : Please refer from page 94 to 95

USB2.0 CABLE AND CORDSET



Description

This USB2.0 cable has been specially selected for fixed or portable military or industrial applications. Can be ordered as cordset with USB-A at both end or as reel of 300m to be used for cabling activity. Its special polyurethane can withstand the harshest environment.

Design

USB2.0 1 X Data Pair	Conductors	2 x 28 AWG Stranded tinned copper wire (Ø0,39mm)
	Insulation	Polyethylene (Ø0,9mm)
	Colors	Green and White
Power 1 X Power Pair	Conductors	2 x 24 AWG Stranded tinned copper wire (Ø0,58mm)
	Insulation	Polyethylene (Ø1,1mm)
	Colors	Red and Black
Drain Wire	Conductor	26 AWG Stranded tinned copper drain wire
Overall	Aluminate foil overlapped and shield braiding of tinned copper wires (16 x 5 x 0,1)	
Jacket	Insulation	UV resistant polyurethane (Ø5,1±0,2mm)
	Color	Black

Electrical characteristics at 20°C

USB2.0 1 X Data Pair	Test voltage	1000 V		
	Attenuation (dB/100m)	1 MHz - 4,0	48 MHz - 19,8	
		4 MHz - 5,5	96 MHz - 28,6	
		8 MHz - 8,2	200 MHz - 39,2	
		12 MHz - 9,9	400 MHz - 56,5	
24 MHz - 14,1				
Power Wire	Conductor resistance	≤ 90 Ohm/km		
	Insulation resistance	≥ 20 MOhm*km		
	Operating voltage	≤ 100 V		
	Test voltage	1000 V		

Other characteristics

Halogen Free Flame Retardant	Resistance to microbial/fungus growth: MIL-STD-810G, method 508.6 = grade 1-2
Oil resistance acc. to 1584, sec. 480 (60°)	Min. bending radius allowed: repeated 10 X Ø single 5 X Ø
Flame retardant acc. to UL 1581, sec. 1090 (H)	Permissible temperature range for transport, installation and operating: -40°C up to 85°C
Flame retardant acc. to IEC 60332-1-2	
RoHS compliant (Directive 2011/65/EC)	Weight: 46 kg/km

How to order : Please refer from page 94 to 95



ADAPTORS AND ACCESS POINTS



Table of contents

ADAPTORS AND ACCESS POINTS	57
USB3.2 Gen1 and USB2.0 access point	58
Composite USB2.0 access point	60
USB2.0 to type EN3646 - PT/451 - ABS1547 adaptor	65



USB3.2 GEN1 AND USB2.0 ACCESS POINT

Description

This USB receptacle is perfectly suitable for access point applications to connect a standard USB key or a USB cable. These receptacles are available on USB3.2 Gen1 - Type A and USB2.0 - Type A or B.

The square flange receptacle is a derivate from MIL-DTL-26482 series size 18. The included composite self-closing cap protects your receptacle against splash and dust.

Main features

MAIN CHARACTERISTICS

- Sealing level: IP54 when not mated
- Temperature range: -40°C / +85°C
- RoHS compliant

DATA TRANSMISSION

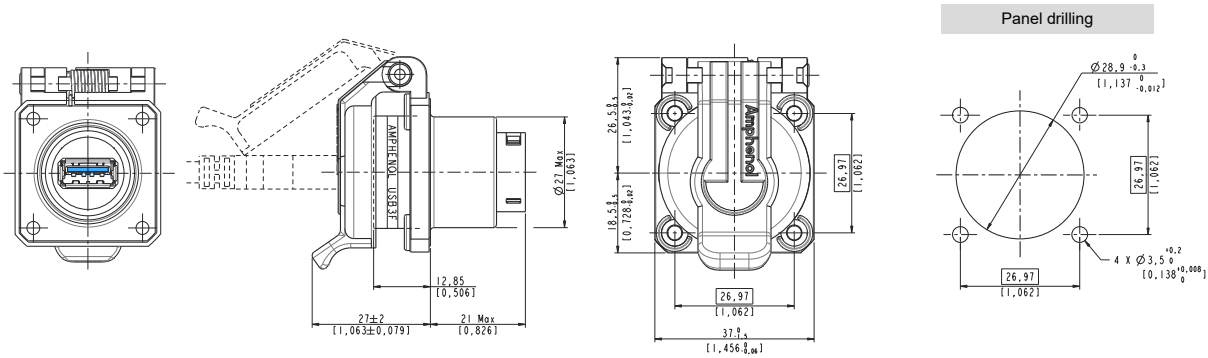
- UBS-A
- USB specification 3.2 Gen1
- Data rate: up to 5 Gb/s for high speed USB
- USB specification 2.0
- Data rate: up to 480 Mb/s for high speed USB

APPLICATIONS

- Access point
- Telecom equipments
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines

Overall dimension

USB3.2 Gen1 access point - With self-closing cap



Important note:

- The part number included the receptacle and the self-closing cap.
- This version is with USB-A in front and back termination.

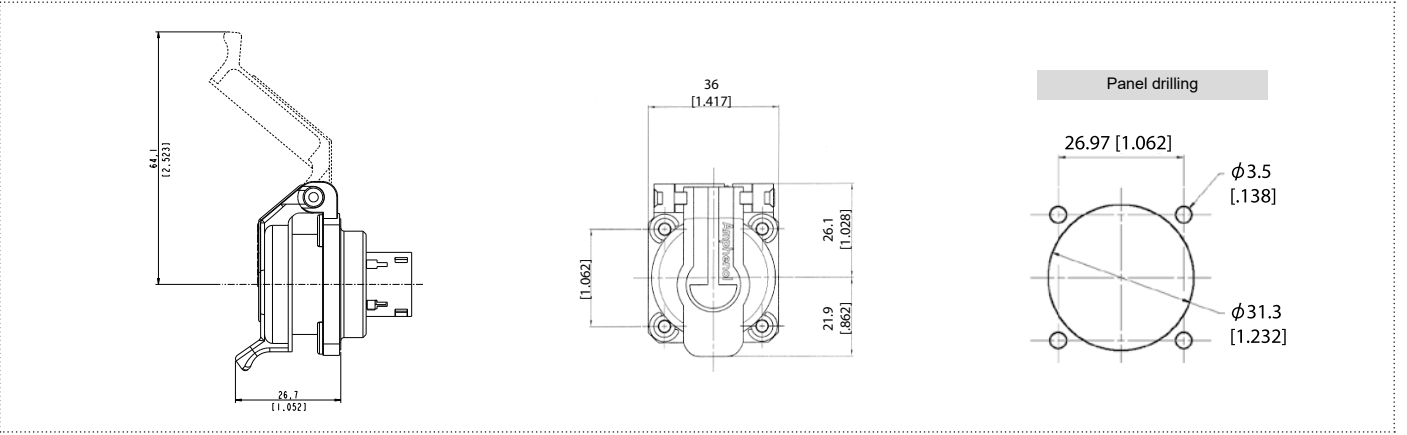
Part number	Plating	Metallized inserts (EMI)
USB3 F 2 B SCC	Black coated ✓	No
USB3 F 2 N SCC	Nickel plated ✓	Yes
USB3 F 2 G SCC	Olive drab cadmium plated	Yes
USB3 F 2 ZN SCC	Black Zinc Nickel ✓	No

✓: RoHS compliant

USB3.2 GEN1 AND USB2.0 ACCESS POINT

Overall dimension

USB2.0 access point - With self-closing cap

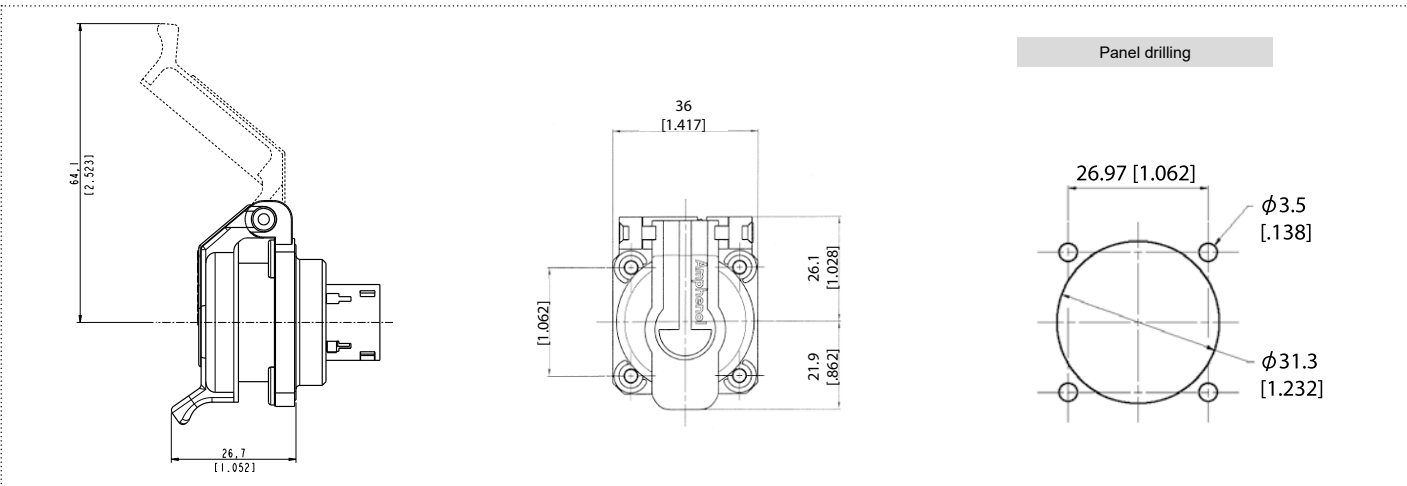


Important note:

- The part number included the receptacle and the self-closing cap.
- This version is with USB-B in front and USB-A in back termination.

Part number	Plating	Metallized inserts (EMI)
USB F 2 1 B SCC	Black coated ✓	No (blank insert)
USB F 2 1 N SCC	Nickel plated ✓	Yes
USB F 2 1 G SCC	Olive drab cadmium plated	Yes
USB F 2 1 ZN SCC	Black zinc nickel ✓	No

USB B access point - With self-closing cap



Important note:

- The part number included the receptacle and the self-closing cap.
- This version is with USB-B in front and USB-A in back termination.

Part number	Plating	Metallized inserts (EMI)
USB B F 2 1 B SCC	Black coated ✓	No (blank insert)
USB B F 2 1 N SCC	Nickel plated ✓	Yes
USB B F 2 1 G SCC	Olive drab cadmium plated	Yes
USB B F 2 1 ZN SCC	Black Zinc Nickel ✓	No

✓: RoHS compliant

COMPOSITE USB2.0 ACCESS POINT



Description

The rugged USB plastic access point is a rugged USB access point solution designed to be used in any industrial harsh environments.

The Self Closing Cap enclosure protects the USB-A Field receptacle from splash and dust when the plug or the USB Memory key is unmated.

Main features

MAIN CHARACTERISTICS

- Data transmission: USB specification 2.0
- Data rate: up to 480 Mb/s for high speed USB
- UBS-A
- Sealing level: IP54 when not mated
- Temperature range: -40°C / +85°C
- RoHS compliant

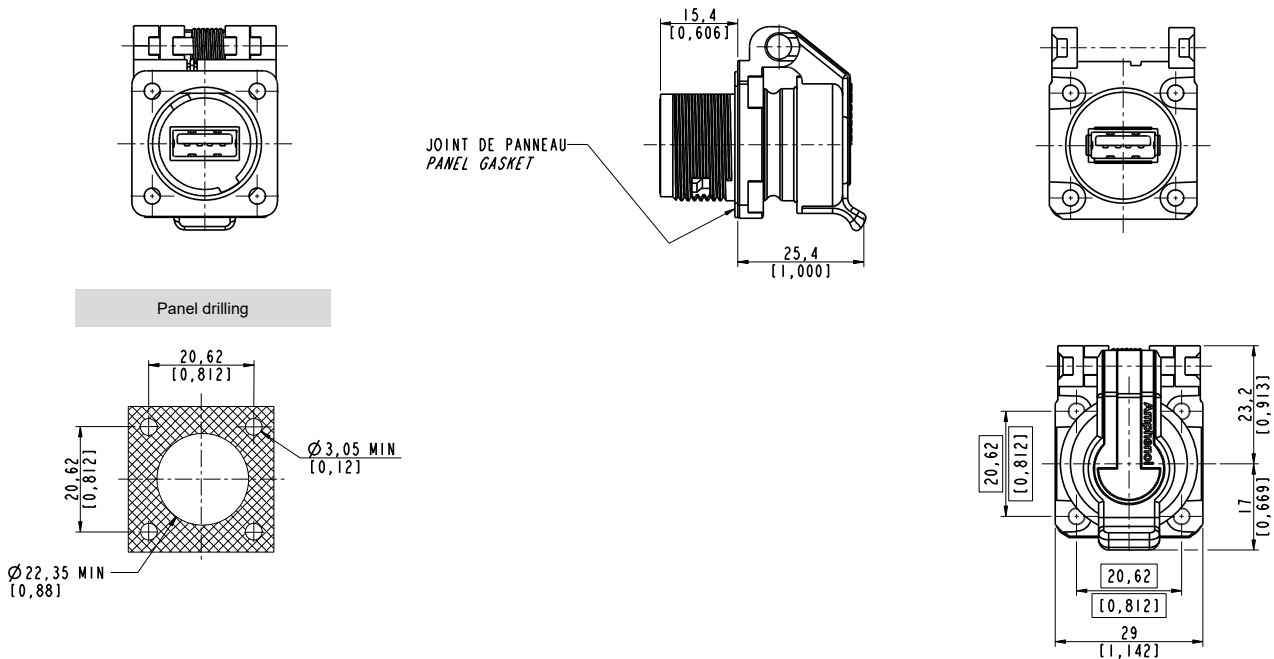
APPLICATIONS

- Access point
- Telecom equipments
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines

Overall dimension

Square flange access point

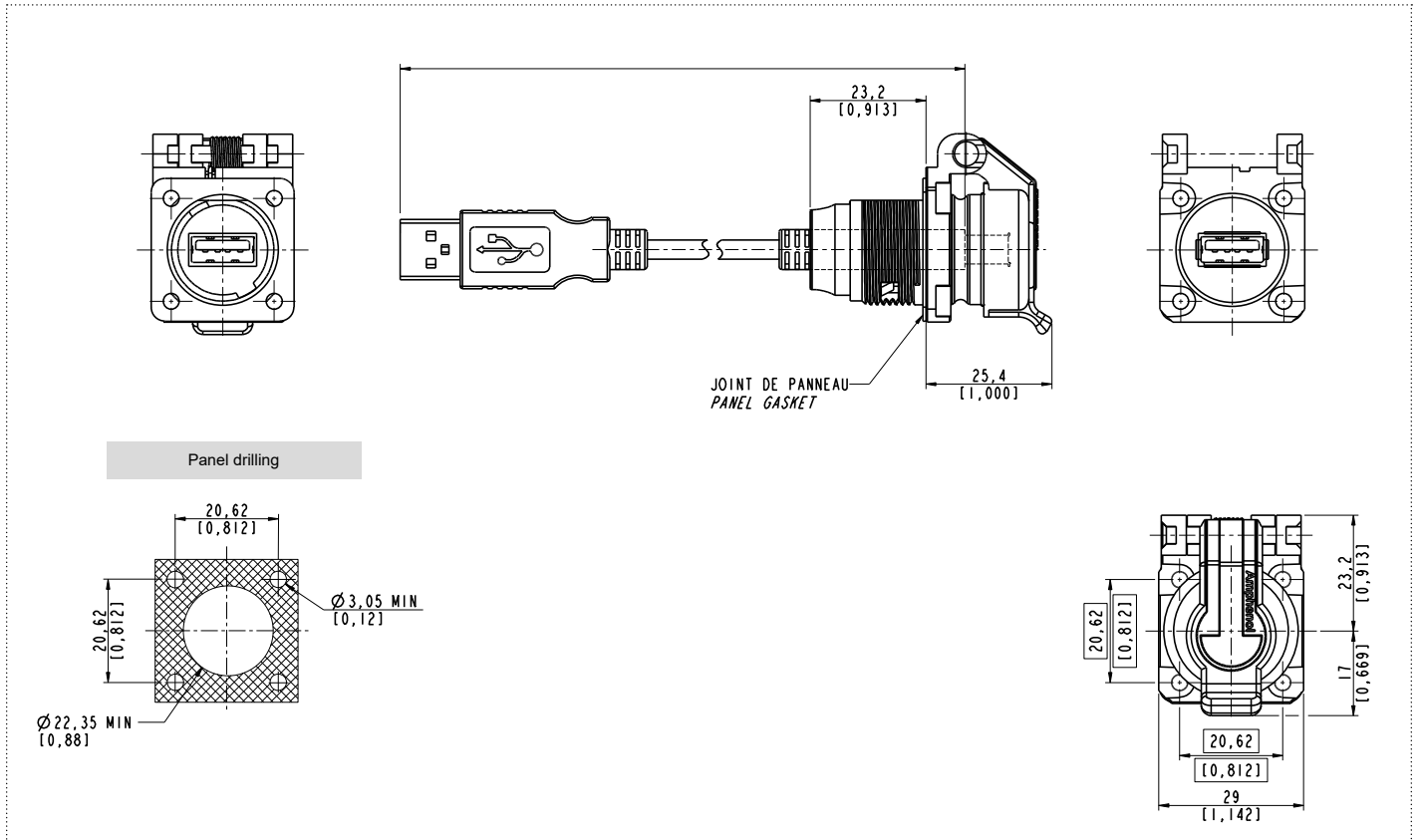
Part number : **USB AP SCC 21**



COMPOSITE USB2.0 ACCESS POINT

Overall dimension

Square flange access point - USB-A cordset



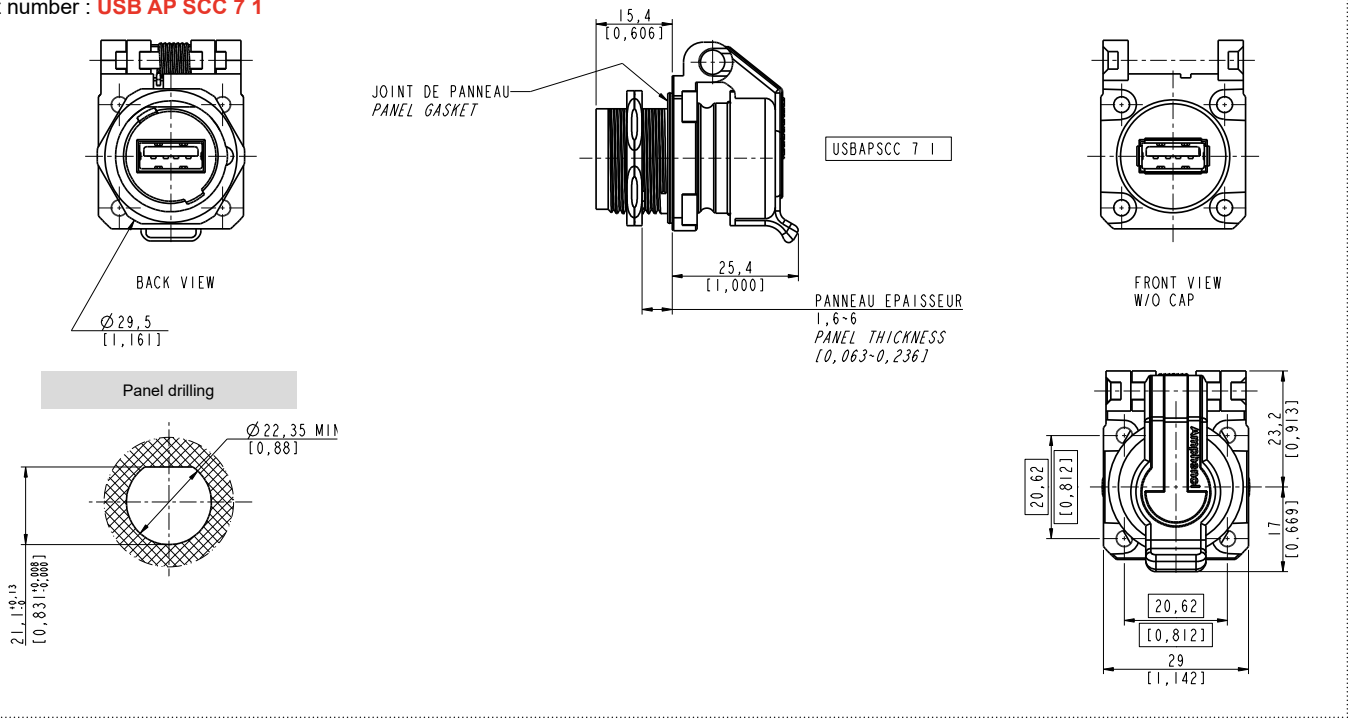
Part number	Cordset length (Meters)	Cordset length (Feet)
USB AP SCC 22 02 A	0.2	0.66
USB AP SCC 22 03 A	0.3	0.98
USB AP SCC 22 05 A	0.5	1.65
USB AP SCC 22 10 A	1.0	3.28

COMPOSITE USB2.0 ACCESS POINT

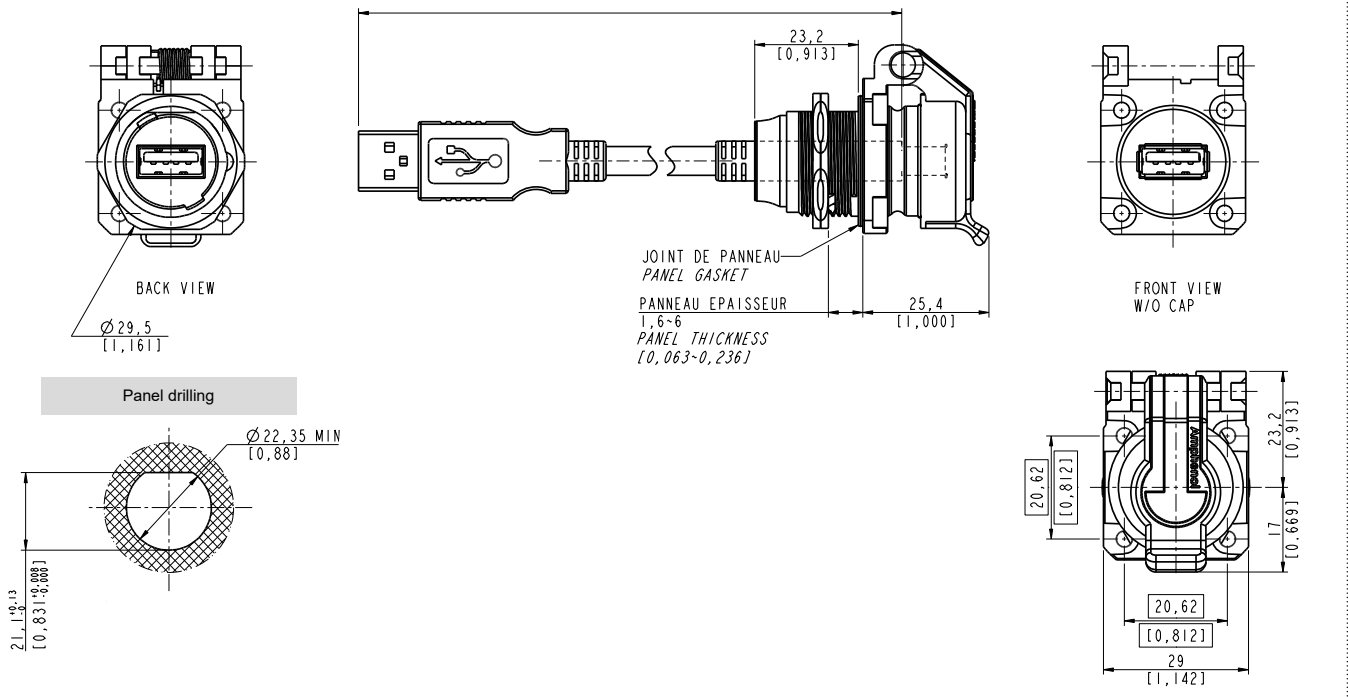
Overall dimension

Jam nut access point

Part number : **USB AP SCC 7 1**



Jam nut access point - USB-A cordset



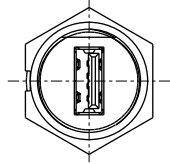
Part number	Cordset length (Meters)	Cordset length (Feet)
USB AP SCC 7 2 02 A	0.2	0.66
USB AP SCC 7 2 03 A	0.3	0.98
USB AP SCC 7 2 05 A	0.5	1.65
USB AP SCC 7 2 10 A	1.0	3.28

COMPOSITE USB2.0 ACCESS POINT

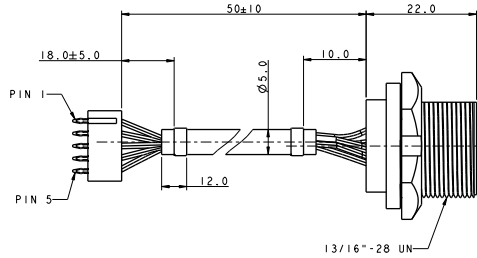
Overall dimension

USB-A receptacle and plug

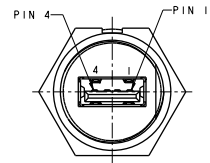
Part number : **USB AF 7**



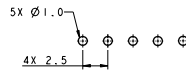
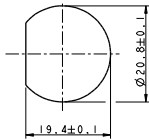
Panel drilling



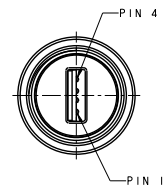
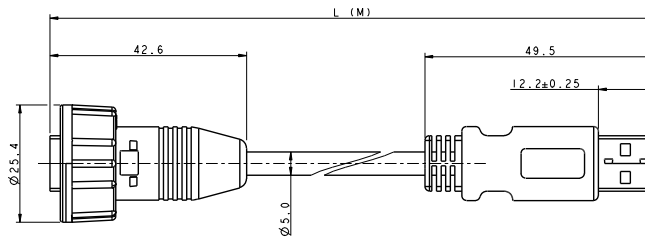
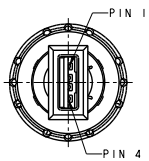
PCB layout



Pin assignments



Part number type: **USB AF 6A XXX**



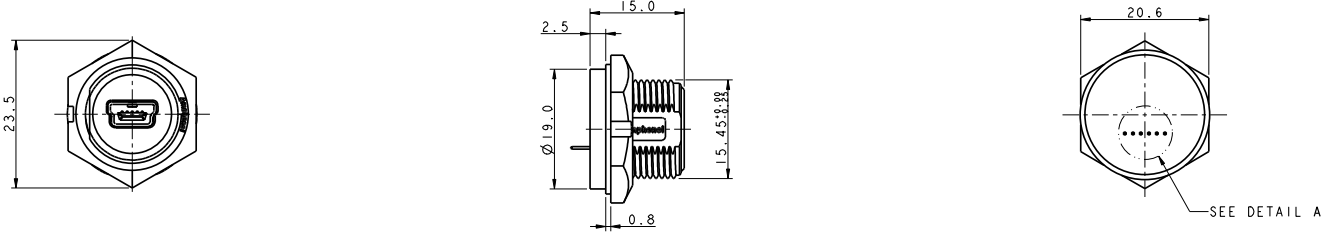
Part number	Cordset length (Meters)	Cordset length (Feet)
USB AF 6A 200	2.0	3.28
USB AF 6A 500	5.0	16.40

COMPOSITE USB2.0 ACCESS POINT

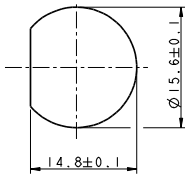
Overall dimension

USB Mini B receptacle and plug

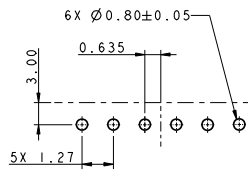
Part number : **USB MINI BF 7 PCB**



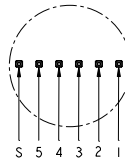
Panel drilling



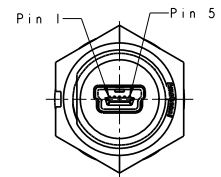
PCB layout



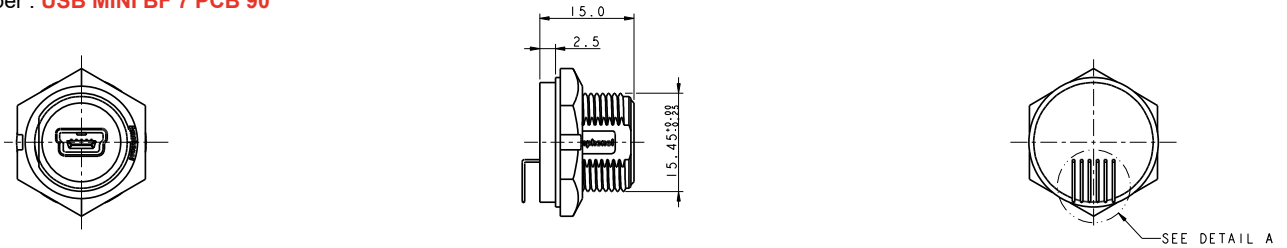
Detail A



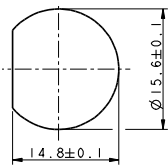
Pin assignments



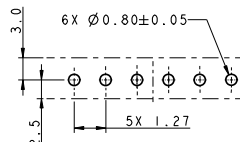
Part number : **USB MINI BF 7 PCB 90**



Panel drilling

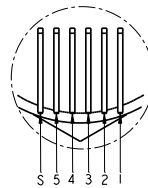


PCB layout

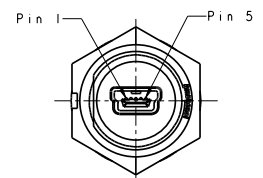


The Distance from PCB edge is 2.5mm max.

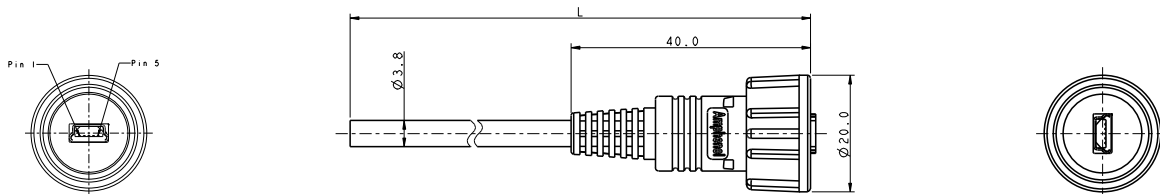
Detail A



Pin assignments



Part number type: **USB MINI BF 6 XXX OPEN**



Part number	Cordset length (Meters)	Cordset length (Feet)
USB MINI BF 6 200 OPEN	2.0	3.28
USB MINI BF 6 500 OPEN	5.0	16.40



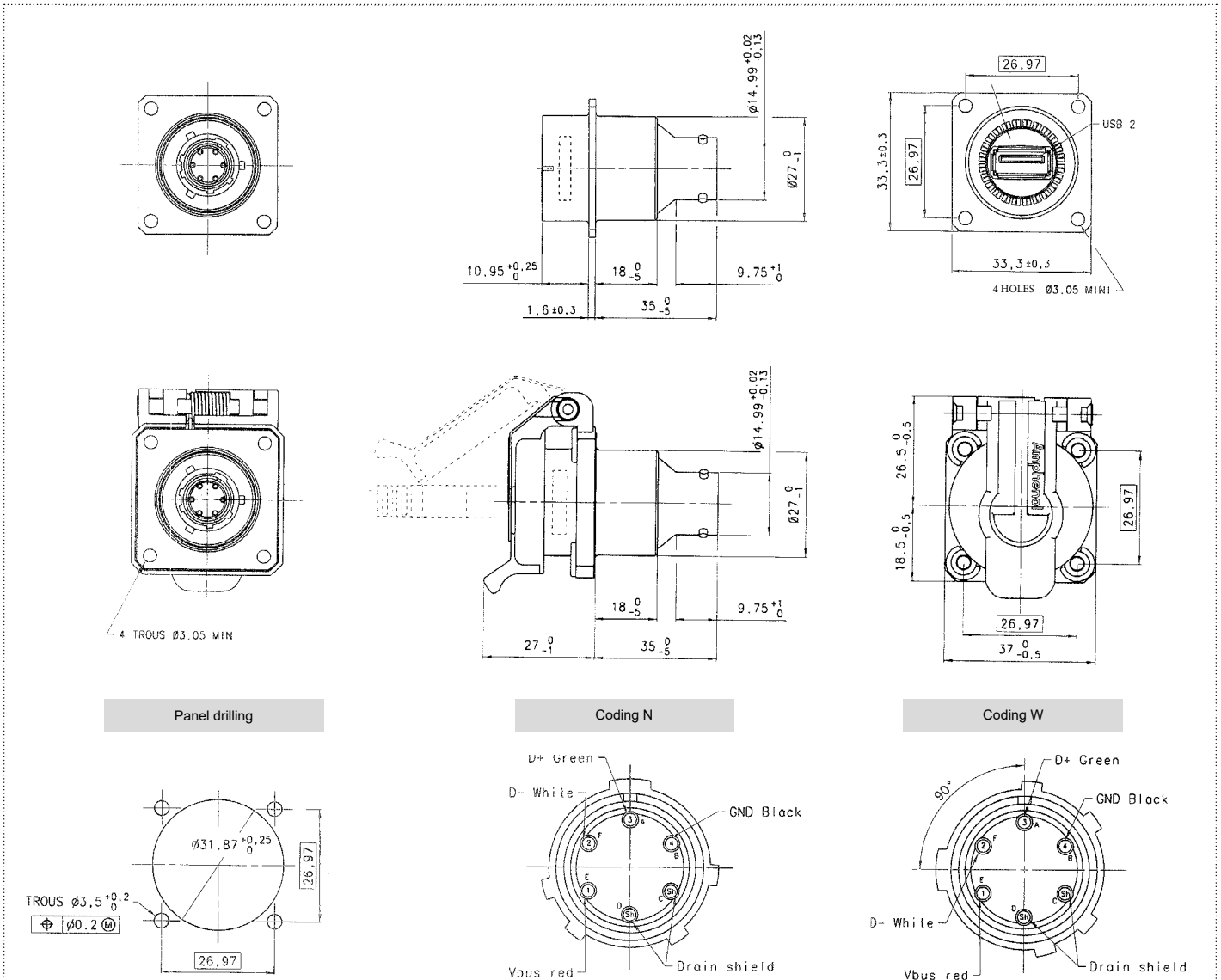
USB2.0 TO TYPE EN3646 - PT/451 - ABS1547 ADAPTOR

Description

This special USB adaptor is the easiest way to connect your EN3646 and PT/451 connector to a USB 2.0 - Type A. Connector. The arrangement of this connector is 10-6 as below. If you want to use this adaptor as an access point, you can include a composite self-closing cap to protect your receptacle against splash and dust. This adaptor is qualified ABS1547.

Overall dimension

USB adaptor to EN3646 - PT/451 with 10-6 arrangement - With or without self-closing cap



Part number	ABS1547 part number	Plating	Coding	Self-closing cap
35608N	ABS1547-003A02N	Black anodized ✓	N	No
35615W	ABS1547-003A02W		W	
35616N	ABS1547-003A03N		N	Yes
35617	ABS1547-003A03W		W	

✓: RoHS compliant



RUGGED ELECTRONICS



Table of contents

RUGGED ELECTRONICS	67
USB3FTV™ Memory key	68
ROK - Rugged Oval Key	69
USBFTV™ - USB2.0 amplifier	70

USB3FTV™ MEMORY KEY



Description

The USB3.2 Gen1 reinforced memory key allows you to carry sensitive information in total security. Its design, based on MIL-DTL-38999 series III can only be mated to our USB3FTV™ or USBFTV™ receptacles and is available, as standard, in capacities from 32 to 256Gb. We provide reinforced USB memory keys available in different capacities.

Main features

MAIN CHARACTERISTICS

- Type: USB3.2 Gen1 (capacities 32, 64, 128 & 256 GB)
- Only compatible with USB3FTV and USBFTV receptacle
- UBS-A
- Voltage: 5V DC - 500 mA max

SPECIFIC FEATURES

- Engineering control (Product change notice & end of life Policy)
- Memory type: MLC (3000 read/write cycles)
- Wear Leveling function
- MTBF: 1,000,000 hours

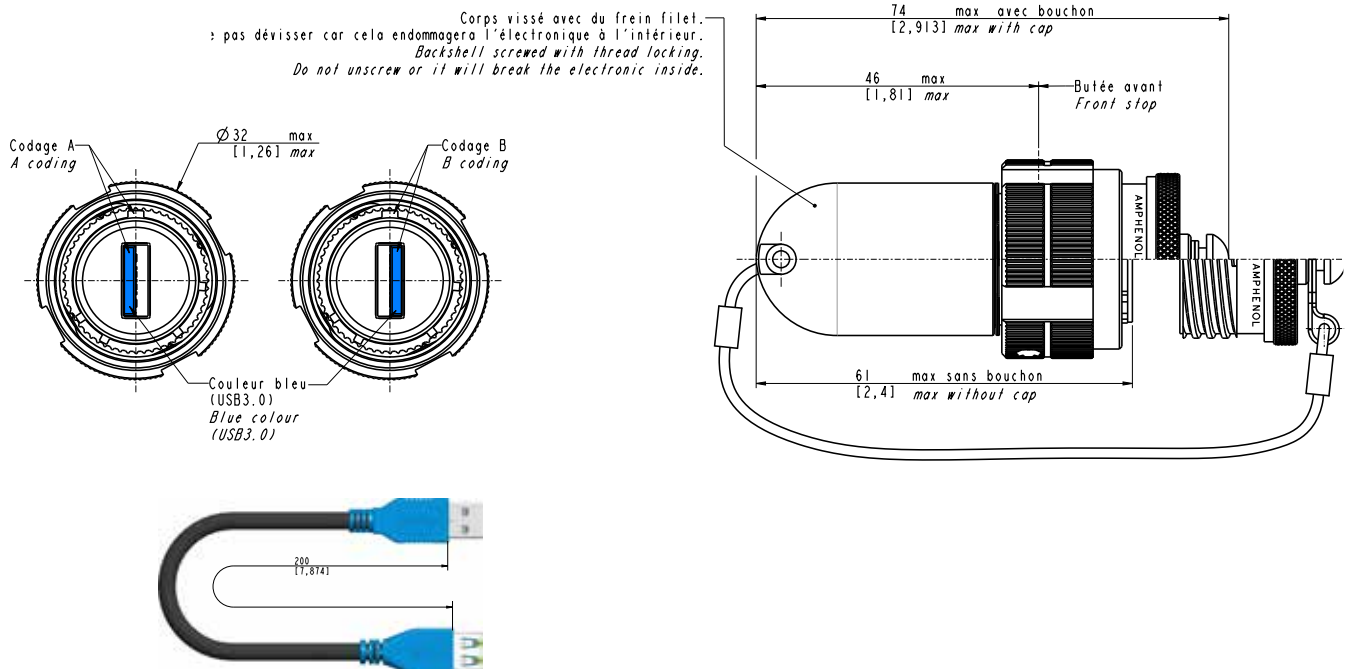
ENVIRONMENTAL PROTECTION

- Sealing: IP68 (when mated)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h with olive drab cadmium
 - 500 h with black zinc nickel ✓
- Vibrations: MIL-STD-810H method 514.8
- Temperature range: - 40°C / +85°C (MIL-STD-810F)
- Data transmission during vibration & temperature tests

How to order : Please refer to page 96

Overall dimension

Part number type: **USB3FTV KEY X XXX X XXX APA UV**



Important note:

- Under request, we can provide you with electronic manufacturer details so you can check if their specific configuration will work with the electronic (please specify memory capacity).
- USB3FTV memory key has to be used with USBFTV receptacle (3.2 Gen1 and 2.0).

✓: RoHS compliant

ROK - RUGGED OVAL KEY



Description

ROK, Rugged Oval Key is a reinforced memory key that allows you to save and carry your information in total security. This memory key cannot be damaged. It is fire proof and so durable that it can be run over by truck and remain undamaged. This rugged memory key is available in capacities from 16 to 256Gb, fast with a USB3.2 Gen1 transfer rate of 5 Gb/s and can be connected to any USB port.

Main features

MAIN CHARACTERISTICS

- Type: USB3.2 Gen1 (capacities 32, 64, 128 & 256 GB)
- Compatible with any USB port receptacle.
- Black painting ✓

DATA TRANSMISSION

- USB3.2 Gen1 max transfer rate : 5 Gb/s
- Compatible with USB2.0 transfer with 480Mb/s.

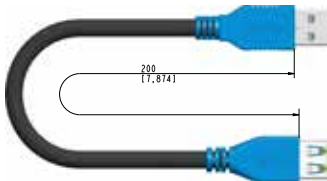
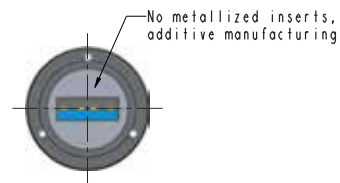
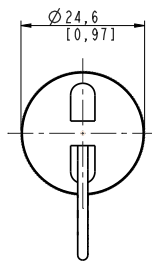
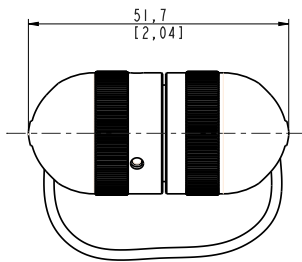
ENVIRONMENTAL PROTECTION

- Resistance against shocks, fire, vibrations.
- Sealed against fluids and dusts : IP68 mated.
- Storage temperature : - 10°C / +70°C.
- Operating temperature : 0°C / +35°C.

How to order : Please refer to page 97

Overall dimension

Part number type: USB3F KEY XXX X



✓: RoHS compliant

USBFTV - USB2.0 AMPLIFIER



Description

As the USB2.0 protocol is limited to 4.8 meters, the reinforced USB2.0 amplifier enables you to extend your USB signal to five times as much, almost 20 meters. This product is subject to custom design. With the help of the USB amplifier selection guide below, please consider all your requirements and reach out to us with your request.

Main features

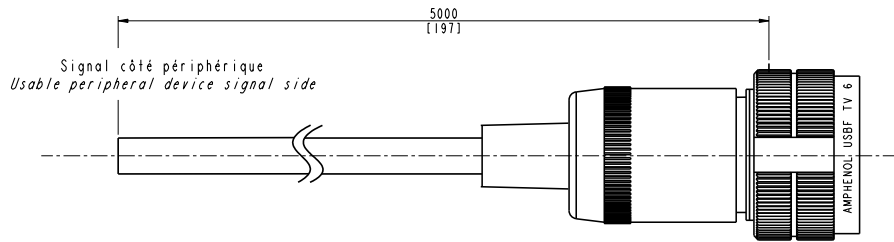
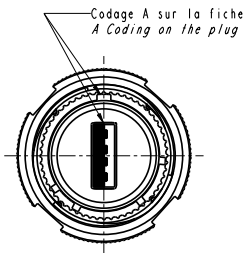
MAIN CHARACTERISTICS

- Maximum 5 USB2.0 amplifier can be connected in order to reach 20 meters.
- USB2.0 cordset is provided by Amphenol.
- Sealed against fluids and dusts (IP68)
- Improved EMI protection
- Mate with our USBFTV™ series (MIL-DTL-38999 series III type) with anti-decoupling device - Shell size 15

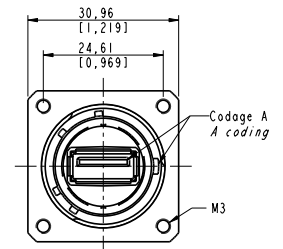
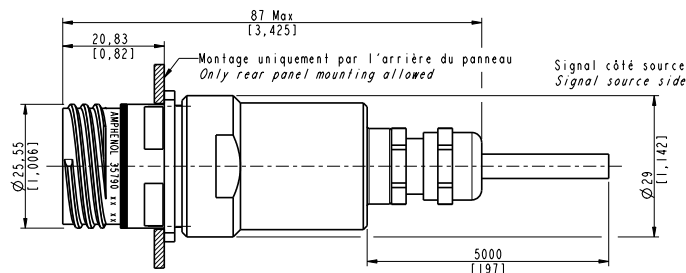
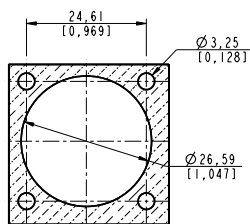
ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (temporary immersion)
- Salt spray:
 - 48 h with nickel plating ✓
 - 500 h with olive drab cadmium
 - 500 h with black zinc nickel ✓
- Humidity: 21 days, 43°C, 98% humidity
- Temperature range: - 40°C / +85°C

Example of configurations



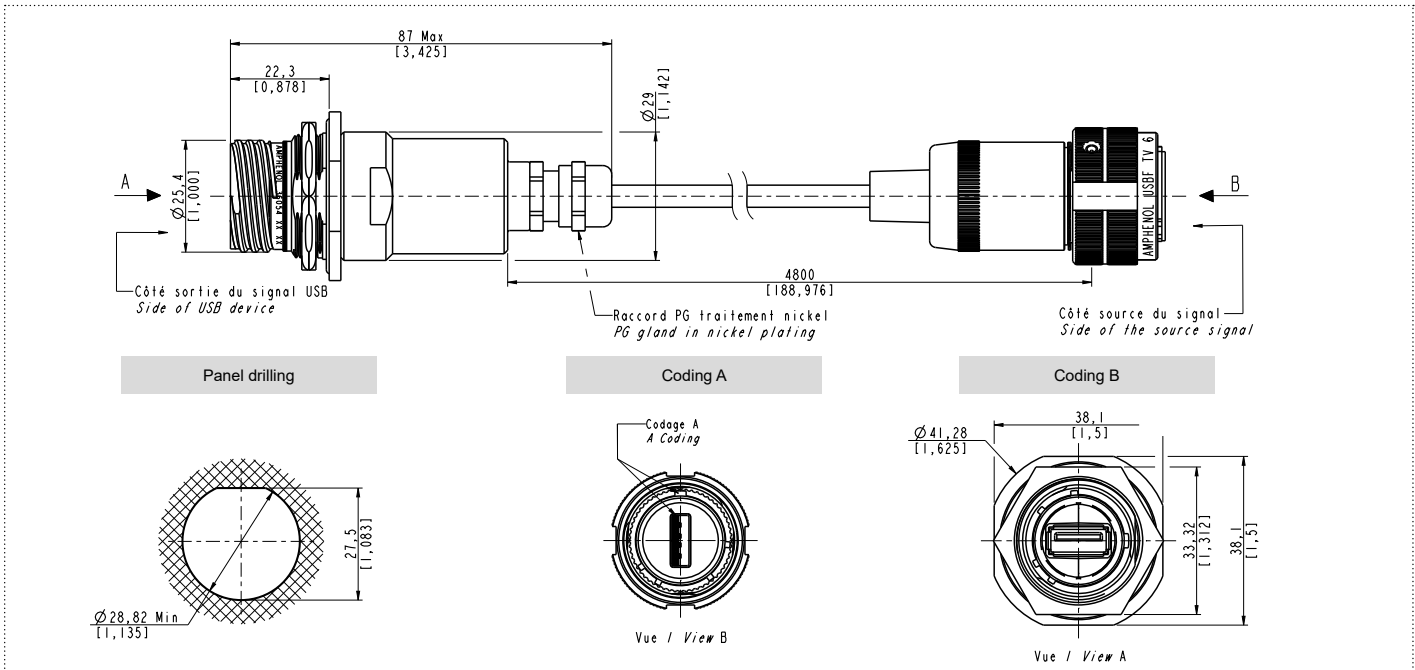
Panel drilling



✓: RoHS compliant

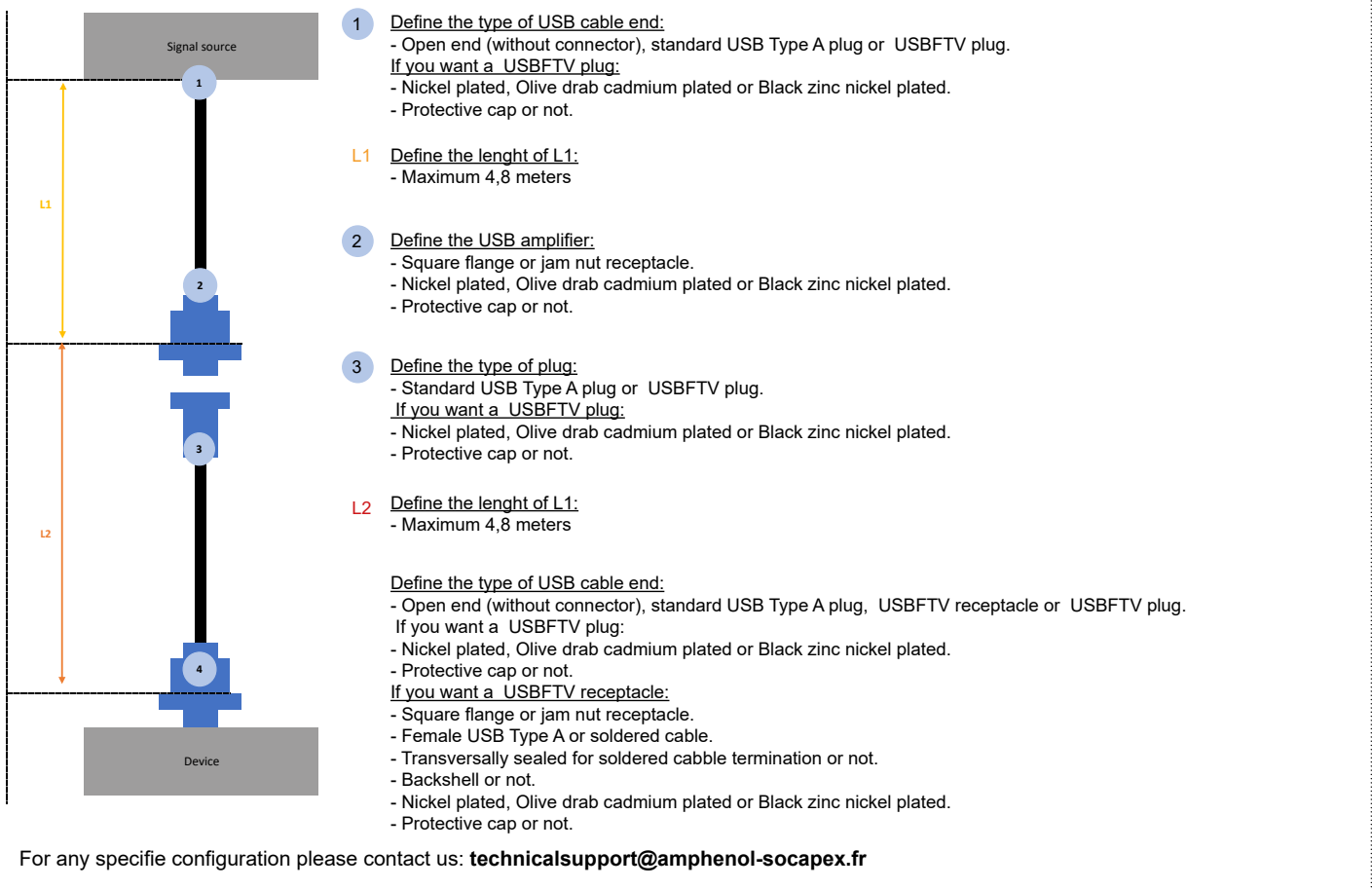
USBFTV - USB2.0 AMPLIFIER

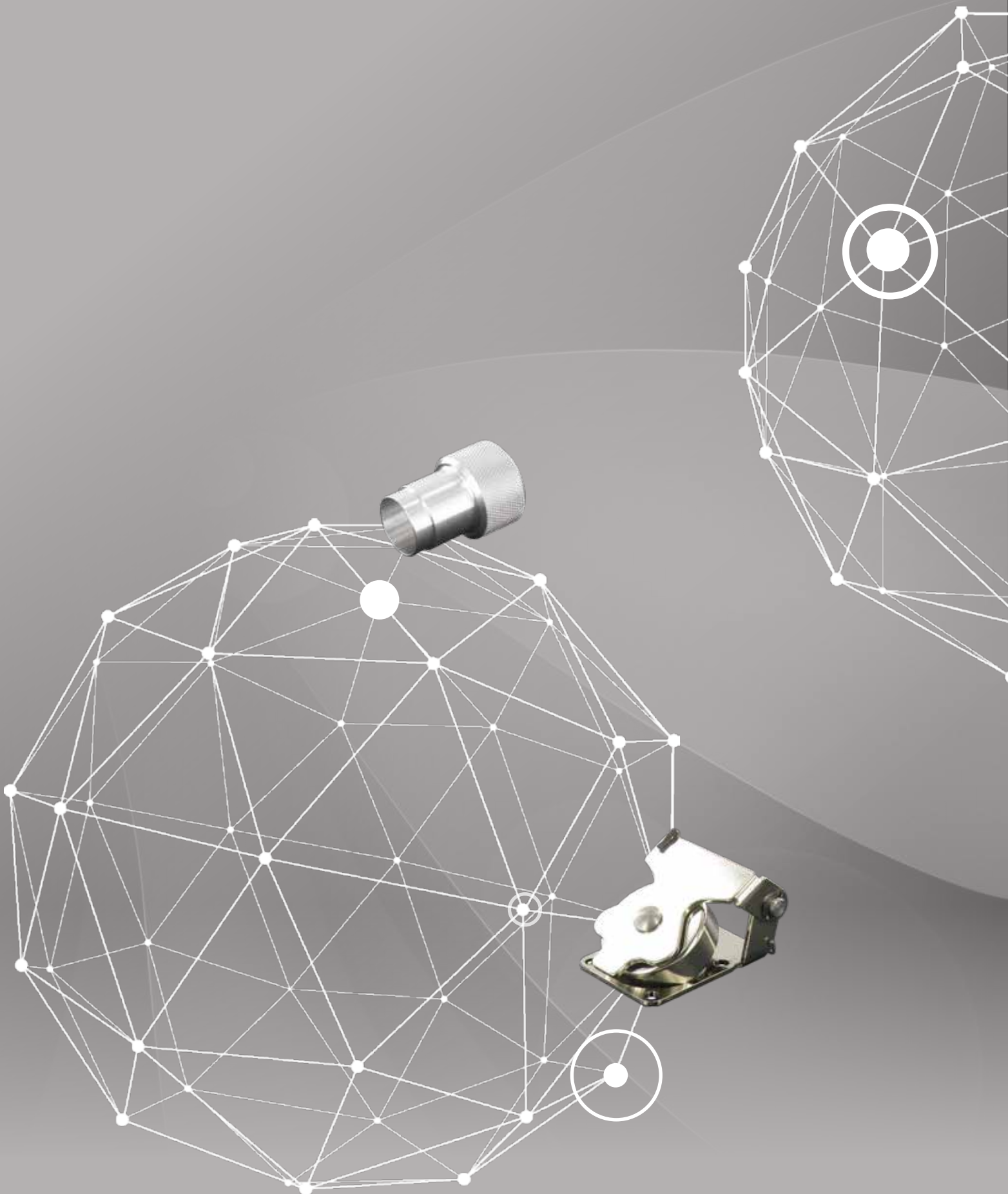
Example of configurations



USB amplifier selection guide

Define your own solution by selecting options in the scheme below





ACCESSORIES



Table of contents

ACCESSORIES	73
Standard protective cap - USBFTV™	74
Self-closing cap - USBFTV™	75
Panel gasket and tool	76

Compatibility table

	Connectors		
	USB3FTV™	USBFTV™	USBBFTV
STANDARD PROTECTIVE CAP	USBFTV C	USBFTV C	USBFTV C
REDUCED FLANGE PROTECTIVE CAP	USBFTV C F057	USBFTV C F057	/
METALLIC SELF-CLOSING CAP	USBFTV SCC	USBFTV SCC	USBFTV SCC
PANEL GASKET	JE15	JE15	JE15
TOOL	USBF ODE	USBF ODE	/
REDUCED FLANGE TOOL	809684	/	/

STANDARD PROTECTIVE CAP - USBFTV™



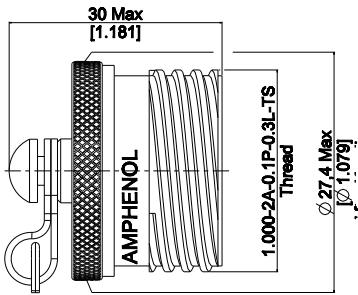
Standard protective cap

This standard protective cap derivate from MIL-DTL-38999 series III provide you a permanent sealing for plugs or receptacles.

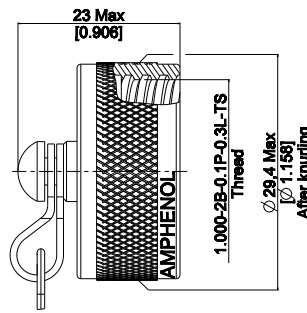
How to order : Please refer to page 98

Overall dimension

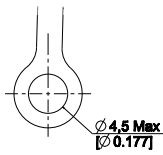
Part number: **USBFTV C 6 X**



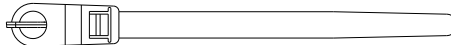
Part number: **USBFTV C 2 X or USBFTV C 7 X**



Small ring for square flange receptacle



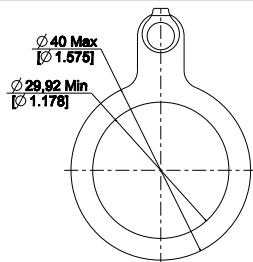
Tie wrap for plug cap



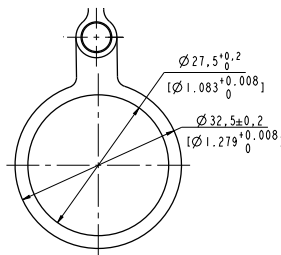
Metallic chain



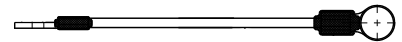
Large ring for jam nut receptacle



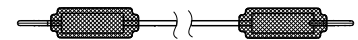
Ring for reduced flange jam nut receptacle



Stainless steel rope



Nylon rope



Cap type	Metallic chain length (mm)	Nylon cord length (mm)	Stainless steel rope length (mm)
USBFTV C 2 & USBFTV C 7		127 (+13,-7)	
USBFTV C 6		160±5	

✓: RoHS compliant

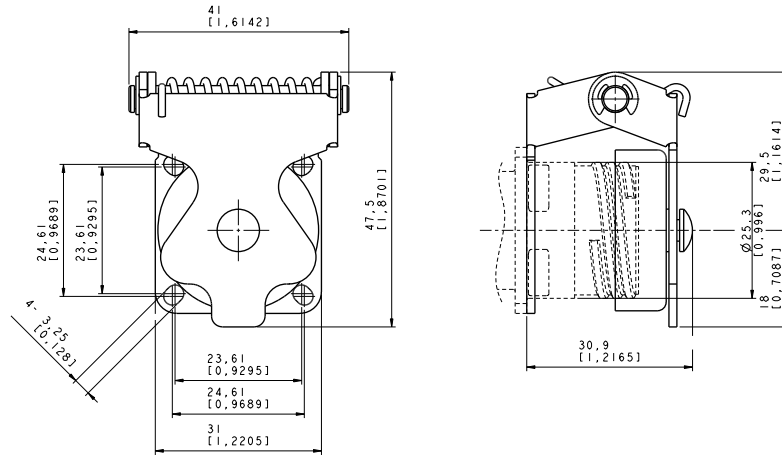
SELF-CLOSING CAP - USBFTV™



Metallic Self-Closing cap

With the metallic self-closing cap, your standard receptacles are protected with an IP67 and EMI protection with an integrated self-closing function.

Overall dimension



Part number	Plating
USBFTV SCC B	Black coating ✓
USBFTV SCC N	Nickel ✓
USBFTV SCC G	Olive drab cadmium
USBFTV SCC ZN	Black Zinc Nickel ✓

USB3.0

USB2.0

Cables and cordsets

Adapters and access point

Rugged electronics

Accessories

Assembly instructions



How to order

✓: RoHS compliant

PANEL GASKET AND TOOL

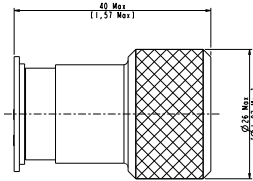


Panel gasket for square flange receptacle

Part number	Thickness (mm)	Color	Picture
JE15	0.6	Blue	
JE18	0.6	Black	

Tool

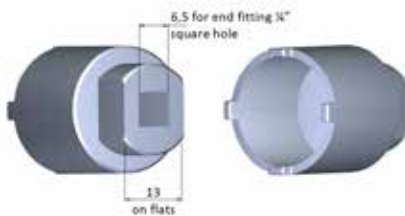
Part number: **USBF ODE**



Important note:

- USBF ODE is used to remove the module of the receptacle. Insert the slot face part of the USBF ODE part into the front of the receptacle and push.
- For more details, please refer to “Assembly instructions” page 80 to 82.

Part number: **809684**



Important note:

- This tool is used to tighten the castle nut of the reduced flange receptacle.
- Insert the four teeth face of the tool into the castle nut and tighten at the recommended force.
- For more details, please refer to “Assembly instructions” page 80 to 82.

NOTES

Lined area for notes with horizontal dashed lines.

USB3.0

USB2.0

Cables and cordsets

Adapters and access point

Rugged electronics

Accessories

Assembly instructions

How to order



ASSEMBLY INSTRUCTIONS

Table of contents

ASSEMBLY INSTRUCTIONS	79
USB3FTV™	80
USBFTV™ and USBBF TV	82

USB3.0

USB2.0

Cables and cordsets

Adapters and access points

Rugged electronics

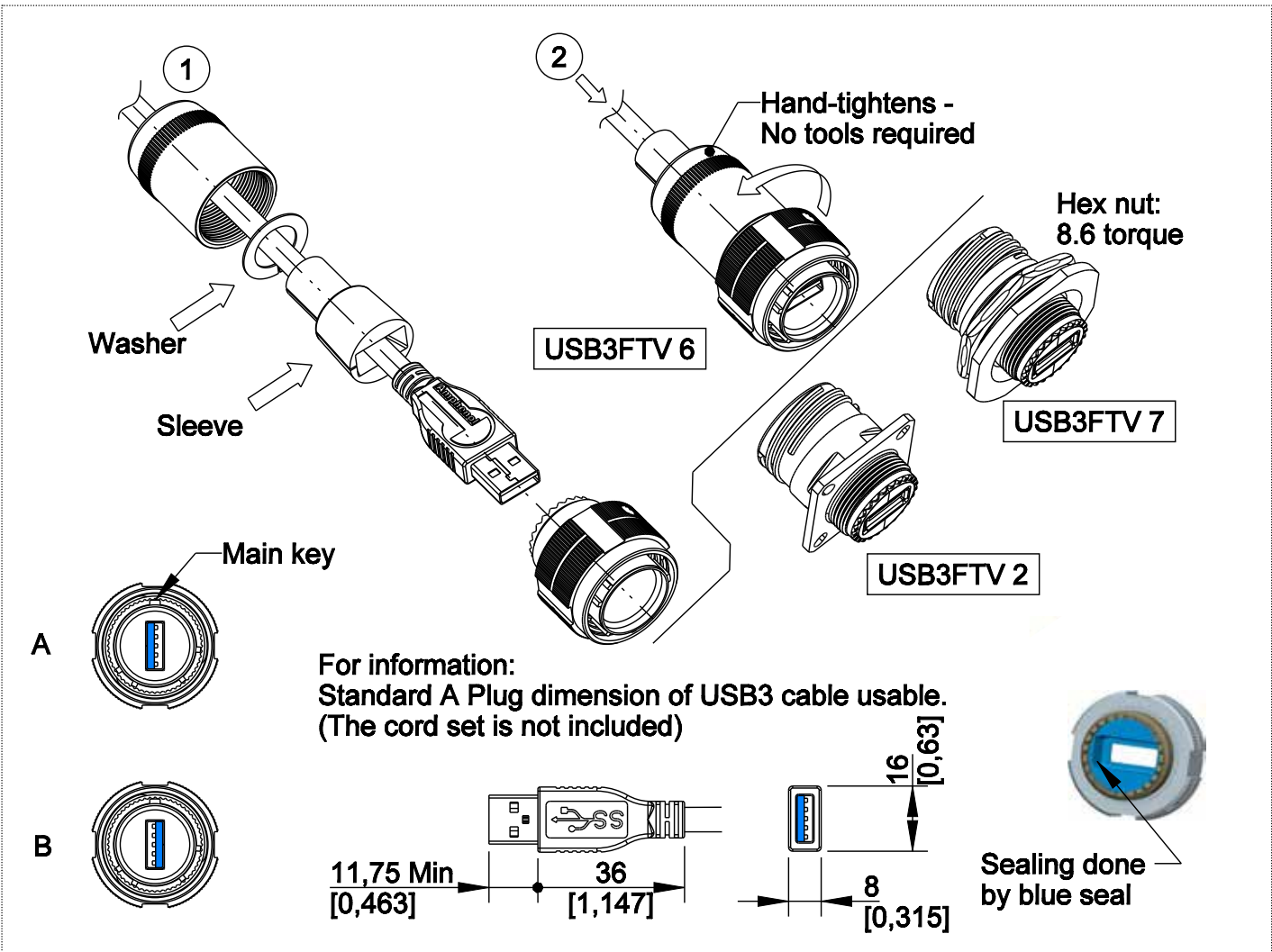
Accessories

Assembly instructions

How to order

ASSEMBLY INSTRUCTION - USB3FTV™

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access points
- Rugged electronics
- Accessories
- Assembly instructions
- How to order



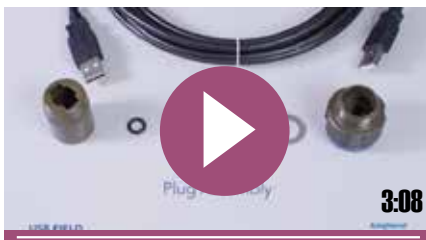
Notes:

- Can be assembled with all standard USB cordset.
- No tool required.

Recommend Torque value:

		Body	Gland	Hex-nut
Plug	USB3FTV 6	/	Hand-tightens - No tool required	/
	USB3FTV 2 PE	/	Hand-tightens - No tool required	/
Receptacle	USB3FTV 2 PEM	7.5 Nm	2.5 to 6.5 Nm	/
	USB3FTV 7	/	/	8.6 Nm
	USB3FTV 7 PE	/	Hand-tightens - No tool required	8.6 Nm
	USB3FTV 7 PEM	7.5 Nm	2.5 to 6.5 Nm	8.6 Nm

Assembly video

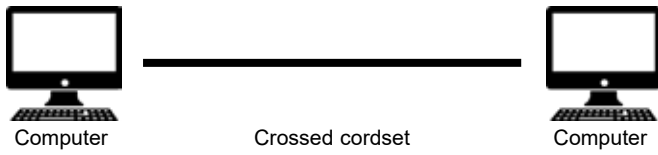


See our assembly video on youtube : www.youtube.com/AmphenolSocapex

- Amphenol USBFIELD assembly - Rugged USB connector

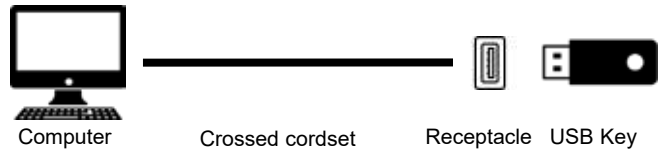
ASSEMBLY INSTRUCTION - USB3FTV™

Crossed or straight

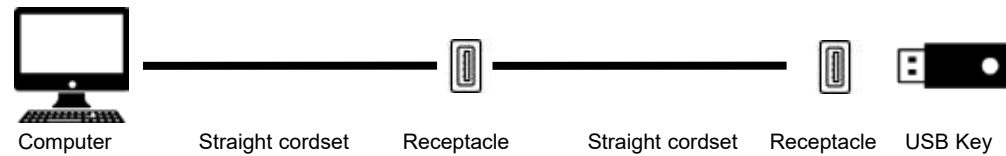
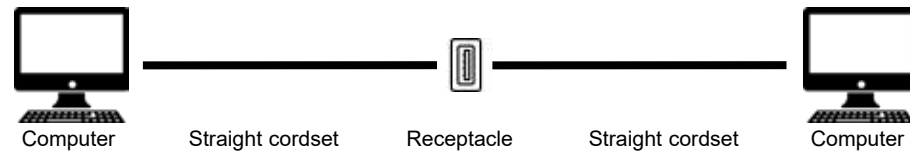


Straight and Crossed USB3.2 Gen1 cables are wired differently from each other.

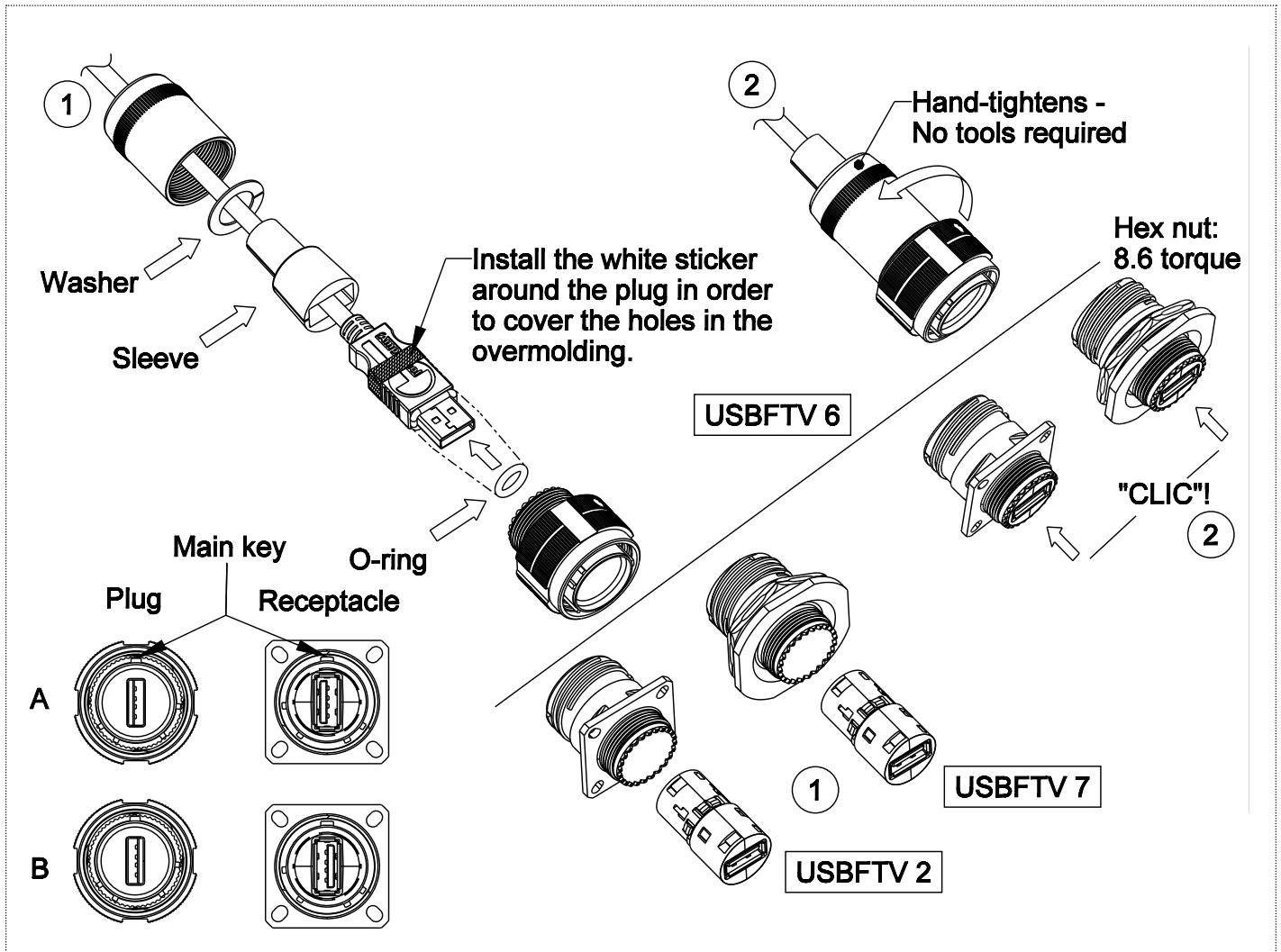
Straight USB3.2 Gen1 connection has the exact same wire arrangement on both side. It is used to connect computers to USB keys.



Crossed USB3.2 Gen1 connection is used to connect two computers. Please note that our USB3.2 Gen1 receptacle are, by conception, crossed.



ASSEMBLY INSTRUCTION - USBFTV™ AND USBBFTV



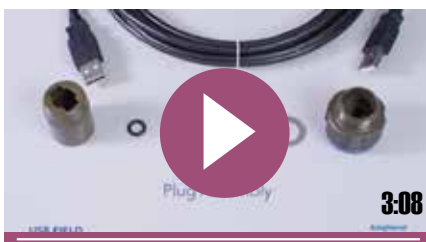
Notes:

- Can be assemble with all standard USB cordset.
- No tool required.

Recommend Torque value:

		Body	Gland	Hex-nut
Plug	USBFTV 6	/	Hand-tightens - No tool required	/
	USBFTV 2 PE	/	Hand-tightens - No tool required	/
	USBFTV 2 PEM	7.5 Nm	2.5 to 6.5 Nm	/
Receptacle	USBFTV 7	/	/	8.6 Nm
	USBFTV 7 PE	/	Hand-tightens - No tool required	8.6 Nm
	USBFTV 7 PEM	7.5 Nm	2.5 to 6.5 Nm	8.6 Nm

Assembly video



See our assembly video on youtube : www.youtube.com/AmphenolSocapex

- Amphenol USBFIELD assembly - Rugged USB connector

NOTES

Area for handwritten notes with horizontal dotted lines.

USB3.0

USB2.0

Cables and cordsets

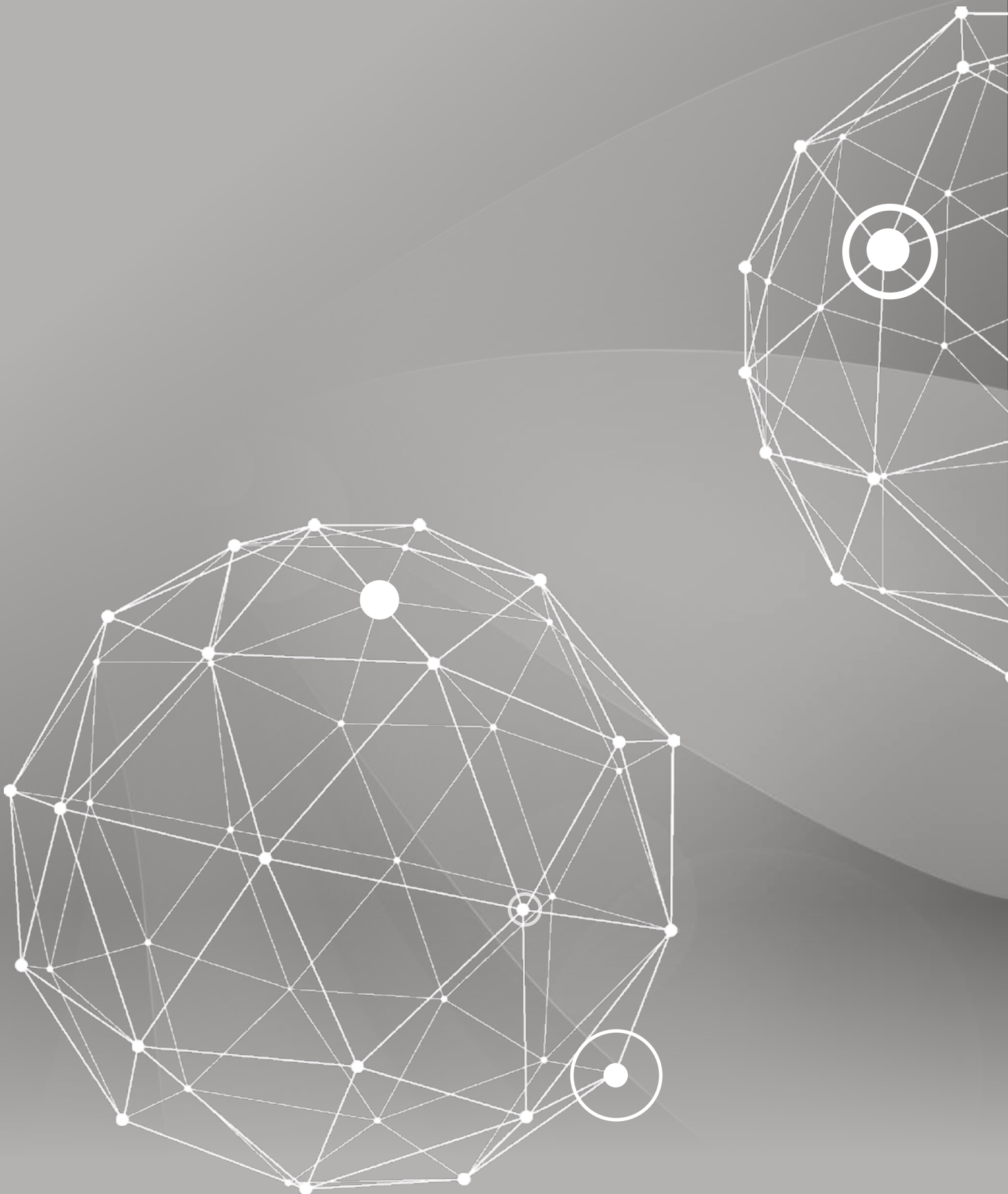
Adapters and access points

Rugged electronics

Accessories

Assembly instructions

How to order



HOW TO ORDER

HOW TO ORDER	85
USB3FTV™ - Plug and receptacle	86
USB3FTV™ - Transversally sealed and hermetic receptacle	87
USB3FTV™ - VG96949	88
USBFTV™ - Plug and receptacle	89
USBFTV™ - Transversally sealed and hermetic receptacle	90
USBFTV™ - Atex Zone 2	91
USBBFTV™ - Plug and receptacle	92
USBBFTV™ - Transversally sealed receptacle	93
Cable	94
Cordset	95
USB3FTV™ Memory key	96
ROK - Rugged Oval Key	97
Standard protective cap	98

USB3.0

USB2.0

Cables and
cordsetsAdapters and
access pointRugged
electronics

Accessories

Assembly
instructions

How to order

HOW TO ORDER - USB3FTV™ PLUG AND RECEPTACLE

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order

1.	2.	3.	4.	5.	6.	7.
Series	Shell type	Coding (for plug with cordset only)	Cordset length (for plug with cordset only)	Backshell (for receptacle only)	Shells material & finish	Type of cable (for plug with cordset only)
USB3FTV	6	A	03		G	ACROS

1. Series

USB3FTV	USB3.2 Gen1 Field Series (USB-A)
---------	----------------------------------

2. Shell type

6	Plug
2	Square flange receptacle
7	Jam nut receptacle

3. Coding (avoid for plug without cordset)

A	Coding A
B	Coding B

4. Cordset length (for plug with cordset only)

03	0,3 m [11.81 inches]
05	0,5 m [19.68 inches]
10	1,0 m [39.37 inches]
15	1,5 m [59.05 inches]

5. Backshell (for receptacle only)

	Without backshell
PE	Metal backshell

6. Shell material and finish

G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel plating ✓
BZ	Marine bronze shell ✓	

7. Type of cable (for plug with cordset only)

ACROS	Crossed USB3.0 cable - USB-A plug
ASTR	Straight USB3.0 cable - USB-A plug
OPEN	Open USB3.0 cable without plug at the end

Examples :

Part number	Description
USB3FTV6A10GOPEN	USB3FTV, plug, coding A, olive drab cadmium plating, 1,0m cordset with open end
USB3FTV2APEG	USB3FTV, square flange receptacle with metal backshell, coding A, olive drab cadmium plating
USB3FTV7AZN	USB3FTV, jam nut receptacle, coding A, black zinc nickel plating

✓: RoHS compliant

HOW TO ORDER - USB3FTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

1.	2.	3.	4.	5.	6.
Series	Shell type	Coding	Cordset length	Shells material & finish	Type of cable
USB3FTV	2S	A	03	G	ACROS

1. Series

USB3FTV	USB3.2 Gen1 Field Series (USB-A)
----------------	----------------------------------

2. Shell type

Shell type	Receptacle	Sealing
2S	Square flange receptacle	Transversally sealed
2H		Hermetic
7S	Jam nut receptacle	Transversally sealed
7H		Hermetic

3. Coding

A	Coding A
B	Coding B

4. Cordset length

03	0,3 m [11.81 inches]
05	0,5 m [19.68 inches]
10	1,0 m [39.37 inches]
15	1,5 m [59.05 inches]

5. Shell material and finish

Material	Shell	Finish
G	Aluminium shell	Olive Drab Cadmium plating
N		Nickel plating ✓
ZN		Black Zinc Nickel plating ✓
BZ	Marine bronze shell ✓	

6. Type of cable

ACROS	Crossed USB3.0 cable - USB-A plug
ASTR	Straight USB3.0 cable - USB-A plug
OPEN	Open USB3.0 cable without plug at the end

Examples :

Part number	Description
USB3FTV2SA03ZNOPEN	USB3FTV, transversally sealed square flange receptacle, coding A, black zinc nickel plating, 0,3m cable with open end
USB3FTV7HA05GASTR	USB3FTV, hermetic jam nut receptacle, coding A, olive drab cadmium plating, 0,5m straight USB3.0 cable with USB-A plug at the end
USB3FTV2HA15NACROS	USB3FTV, hermetic square flange receptacle, coding A, nickel plating, 1,5m crossed USB3.0 cable with USB-A plug at the end

✓: RoHS compliant

HOW TO ORDER - USB3FTV™ - VG96949

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order

1.	2.	3.	4.	5.
Series	Shell type	Shell size	Coding	Shell material & finish
VG96949-03	A	15	A	HI

1. Series	
VG96949-03	VG96949-03 standard

2. Shell type	
C	Plug
A	Square flange receptacle
B	Jam nut receptacle

3. Shell size	
15	Shell size 15

4. Coding	
N	Coding N

5. Shell material and finish		
A		Olive Drab Cadmium plating
HI	Aluminium shell	Black Zinc Nickel plating ✓
J		Tin Zinc plating ✓
B	Marine bronze shell ✓	

Examples :

Part number	Description
VG96949-03C15NJ	VG96949-03 USB3FTV, plug, coding N, tin zinc plating
VG96949-03A15NA	VG96949-03 USB3FTV, square flange receptacle , coding N, olive drab cadmium plating
VG96949-03B15NB	VG96949-03 USB3FTV, jam nut receptacle, coding N, marine bronze shell

✓: RoHS compliant

HOW TO ORDER - USBFTV™ - PLUG AND RECEPTACLE

1.	2.	3.	4.	5.
Series	Shell type	Backshell (receptacle only)	Back terminations (receptacle only)	Shells material & finish
USBFTV	7	PEM	2	G

1. Series

USBFTV	USB2.0 Field Series (USB-A)
--------	-----------------------------

2. Shell type

6	Plug
2	Square flange receptacle
7	Jam nut receptacle

3. Backshell (receptacle only)

	Without backshell	
PE		Plastic gland
PEM	Metal backshell	Metal gland (back termination 2 only)

4. Back terminations (receptacle only)

1	Female USB-A
2	Solder (4 tinned holes)

5. Shell material & finish

G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel ✓
BZ	Marine bronze shell ✓	

Examples :

Part number	Description
USBFTV6G	USBFTV, plug, olive drab cadmium plating
USBFTV2PE2N	USBFTV, square flange receptacle with metal backshell and plastic gland, solder back termination, nickel plating
USBFTV7PEM2N	USBFTV, jam nut receptacle with metal backshell and metal gland, solder back termination, nickel plating

✓: RoHS compliant

HOW TO ORDER - USBFTV™ - TRANSVERSALLY SEALED AND HERMETIC RECEPTACLE

USB3.0
USB2.0
Cables and cordsets
Adapters and access point
Rugged electronics
Accessories
Assembly instructions
How to order

1.	2.	3.	4.	5.	6.	7.	8.	9.
Series	Shell type	Backshell	Sealing type	Coding	Back terminations	Shells material and finish	Cordset length	USB Cable end
USBFTV	2	PE	S	A	2	G	03	OPEN

1. Series

USBFTV	USB2.0 Field Series (USB-A)
--------	-----------------------------

2. Shell type

2	Square flange receptacle
7	Jam nut receptacle

3. Backshell

	Without backshell	
PE	Metal backshell	Plastic gland
PEM		Metal gland

4. Sealing type

S	Transversally sealed receptacle
H	Hermetic receptacle

5. Coding

A	Coding A
B	Coding B

6. Back terminations

2	USB2.0 cable
---	--------------

7. Shell material & finish

G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel ✓
BZ	Marine bronze shell ✓	

8. Cordset length

03	0,3 m [11.81 inches]
05	0,5 m [19.68 inches]
10	1,0 m [39.37 inches]
15	1,5 m [59.05 inches]

9. USB Cable end

A	USB-A plug
OPEN	Open USB2.0 cable without plug at the end

Examples :

Part number	Description
USBFTV2SA2G03OPEN	USBFTV, transversally sealed square flange receptacle, coding A, olive drab cadmium plating, 0,3m USB2.0 cable with open end
USBFTV2PESA2N05A	USBFTV, transversally sealed square flange receptacle with metal backshell and plastic gland, coding A, nickel plating, 0,5m USB2.0 cable with USB-A plug at the end
USBFTV2PEMSA2N03A	USBFTV, transversally sealed square flange receptacle with metal backshell and metal gland, coding A, nickel plating, 0,3m USB2.0 cable with USB-A plug at the end

✓: RoHS compliant

HOW TO ORDER - USBFTV™ - ATEX ZONE 2

1.	2.	3.	4.	5.	6.	7.
Series	Shell type	Coding (for receptacle only)	Back terminations (for receptacle only)	Shell material and finish	Cordset length (for receptacle only)	USB Cable end (for receptacle only)
USBFTVX	2S	A	2	G	03	A

1. Series

USBFTVX	USB2.0 Field Series (USB-A) for Atex Zone 2
---------	---

2. Shell type

6	Plug	
2S	Square flange receptacle	Transversally sealed
7S	Jamp nut receptacle	

3. Coding (for receptacle only)

A	Coding A
B	Coding B

4. Back terminations (for receptacle only)

2	USB2.0 cable
---	--------------

5. Shell material & finish

G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel ✓
BZ	Marine bronze shell ✓	

6. Corset length (for receptacle only)

03	0,3 m [11.81 inches]
05	0,5 m [19.68 inches]
10	1,0 m [39.37 inches]
15	1,5 m [59.05 inches]

7. USB Cable end (for receptacle only)

A	USB-A plug
OPEN	Open USB 2.0 cable without plug at the end

Examples :

Part number	Description
USBFTVX6G	USBFTV for atex zone 2, plug, olive drab cadmium plating
USBFTVX7SA2G03A	USBFTV for atex zone 2, transversally sealed jam nut receptacle, coding A, olive drab cadmium plating, 0,3m USB2.0 cable with USB-A plug at the end
USBFTVX7SA2N03OPEN	USBFTV for atex zone 2, transversally sealed jam nut receptacle, coding A, nickel plating, 0,3m USB2.0 cable with open end

✓: RoHS compliant

USB3.0
USB2.0
Cables and cordsets
Adapters and access point
Rugged electronics
Accessories
Assembly instructions
How to order

HOW TO ORDER - USBBFTV - PLUG AND RECEPTACLE

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order

1.	2.	3.	4.	5.
Series	Shell type	Backshell (receptacle only)	Back terminations (receptacle only)	Shell material & finish
USBBFTV	7	PEM	2	G

1. Series

USBBFTV	USB2.0 Field Series (USB-B)
----------------	-----------------------------

2. Shell type

6	Plug
2	Square flange receptacle
7	Jam nut receptacle

3. Backshell (receptacle only)

	Without backshell	
PE		Plastic gland
PEM	Metal backshell	Metal gland (back termination 2 only)

4. Back terminations (receptacle only)

1	Female USB-A
2	Solder (4 tinned holes)

5. Shell material and finish

G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel ✓
BZ	Marine bronze shell ✓	

Examples :

Part number	Description
USBBFTV6ZN	USBBFTV, plug, black zinc nickel plating
USBBFTV2PE1N	USBBFTV, square flange receptacle with metal backshell and plastic gland, female USB-A back termination, nickel plating
USBBFTV22N	USBBFTV, square flange receptacle, solder back termination, nickel plating

✓: RoHS compliant

HOW TO ORDER - USBBFTV - TRANSVERSALLY SEALED RECEPTACLE

1.	2.	3.	4.	5.	6.	7.	8.
Series	Shell type	Backshell	Sealing type	Back terminations	Shells material and finish	Cordset length	USB Cable end
USBBFTV	2	PE	S	2	G	03	A

1. Series	
USBBFTV	USB2.0 Field Series (USB-B)
2. Shell type	
2	Square flange receptacle
7	Jam nut receptacle
3. Backshell	
	Without backshell
PE	Metal backshell
PEM	Metal backshell
	Plastic gland
	Metal gland
4. Sealing type	
S	Transversally sealed receptacle
5. Back terminations	
2	USB2.0 cable

6. Shell material & finish		
G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel ✓
BZ	Marine bronze shell ✓	
7. Corset length		
03	0,3 m [11.81 inches]	
05	0,5 m [19.68 inches]	
10	1,0 m [39.37 inches]	
15	1,5 m [59.05 inches]	
8. USB Cable end		
A	USB-A plug	
OPEN	Open USB 2.0 cable without plug at the end	

Examples :

Part number	Description
USBBFTV7S2N03A	USBBFTV, transversally sealed jam nut receptacle, nickel plating, 0,3m USB2.0 cable with USB-A plug at the end
USBBFTV2S2G05OPEN	USBBFTV, transversally sealed square flange receptacle, olive drab cadmium plating, 0,5m USB2.0 cable with open end
USBBFTV7S2G10A	USBBFTV, transversally sealed jam nut receptacle, olive drab cadmium plating, 1,0m USB2.0 cable with USB-A plug at the end

✓: RoHS compliant

USB3.0
 USB2.0
 Cables and cordsets
 Adapters and access point
 Rugged electronics
 Accessories
 Assembly instructions
 How to order

HOW TO ORDER - CABLE

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order**

Part number	USB	Lenght
191-030943-00	USB3.2 Gen1	300m
190-040567-00	USB2.0	300m

✓: RoHS compliant

HOW TO ORDER - CORDSET

1.	2.	3.	4.	5.
Series	Type	USB3.0 wiring	Lenght	Mandatory
USB3	AA	CROSSED	050	PU HFFR

1. Series

USB3	USB3.2 Gen1 Cordset
USB2	USB2.0 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

4. Lenght

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	Black polyurethane jacket
---------	---------------------------

Important note:

- Cordsets are with USB-A plug overmolded on each end.
- To define a crossed or straight USB3.2 Gen1 cordset, please refer to page 81.
- Crossed cordset will have a black overmolding while straight cordset will have a blue overmolding.
- **USB3.2 Gen1 cordset will be out of his specification over 3,00m lenght.**
- **USB2.0 cordset will be out of his specification over 4,80m lenght.**

Examples :

Part number	Description
USB2AA450PUHFFR	USB2.0 cordset with overmoldded USB type A plug on each end, 4,5m lenght
USB3AACROSSED150PUHFFR	USB3.2 Gen1 cordset with overmoldded USB type A plug on each end, 1,5m lenght with crossed wiring
USB3AASTRAIGHT200PUHFFR	USB3.2 Gen1 cordset with overmoldded USB type A plug on each end, 2,0m lenght with straight wiring

✓: RoHS compliant

HOW TO ORDER - USB3FTV™ MEMORY KEYS

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order

1.	2.	3.	4.	5.	6.
Series	Coding	Capacity	Shells material and finish	Protective cap	Mandatory
USB3FTVKEY6	A	64	G	CAP	APA UV

1. Series

USB3FTVKEY6	USB3.2 Gen1 Memory Keys
--------------------	-------------------------

2. Coding

A	Coding A
B	Coding B

3. Capacity

32	32 Gb
64	64 Gb
128	128 Gb
256	256 Gb

4. Shell material and finish

G		Olive Drab Cadmium plating
N	Aluminium shell	Nickel plating ✓
ZN		Black Zinc Nickel ✓
BZ	Marine bronze shell ✓	

5. Cap

	Without protective cap
CAP	With protective cap

6. Mandatory

APA UV	Mandatory
---------------	-----------

Examples :

Part number	Description
USB3FTVKEY6A64GCAPAPAUV	USB3FTV memory key, coding A, 64Gb capacity, olive drab cadmium plating, with protective cap
USB3FTVKEY6A128NAPAUV	USB3FTV memory key, coding A, 128Gb capacity, nickel plating, without protective cap
USB3FTVKEY6A256ZNCAPAPAUV	USB3FTV memory key, coding A, 256Gb capacity, black zinc nickel plating, with protective cap

✓: RoHS compliant

HOW TO ORDER - ROK - RUGGED OVAL KEY

1.	2.	3.
Series	Capacity	Plating
USB3FKEY	16	B

1. Series	
USB3FKEY	ROK - Rugged Oval Key

3. Series	
B	Black painting

2. Shell type	
16	16 Gb
32	32 Gb
64	64 Gb
128	128 Gb
256	256 Gb

Examples :

Part number	Description
USB3FKEY16B	Rugged Oval Key, 16Gb capacity, black painting
USB3FKEY64B	Rugged Oval Key, 64Gb capacity, black painting
USB3FKEY256B	Rugged Oval Key, 256Gb capacity, black painting

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order

HOW TO ORDER - STANDARD PROTECTIVE CAP

- USB3.0
- USB2.0
- Cables and cordsets
- Adapters and access point
- Rugged electronics
- Accessories
- Assembly instructions
- How to order

1.	2.	3.	4.	5.
Series	Connector type	Rope type	Shells material and finish	Deviation
USBFTV C	7		G	F057

1. Series

USBFTVC	USBFTV standard protective cap
----------------	--------------------------------

2. Connector type

6	Plug
2	Square flange receptacle
7	Jam nut receptacle

3. Rope type

	Nylon cord
M	Metallic chain
MR	Stainless Steel rope - Transparent teflon jacket
BMR	Stainless Steel rope - Black teflon jacket

4. Shell material and finish

N	Nickel plating ✓
G	Olive drab cadmium
ZN	Black zinc nickel plating ✓

5. Deviation

F057	Reduced flange ring
-------------	---------------------

Examples :

Part number	Description
USBFTVC2N	USBFTV protective cap for square flange receptacle, nylon cord, nickel plating
USBFTVC2MRN	USBFTV protective cap for square flange receptacle, stainless steel rope with teflon jacket, nickel plating
USBFTVC6ZN	USBFTV protective cap for plug, nylon cord, black zinc nickel plating

✓: RoHS compliant

ABOUT AMPHENOL

Founded in 1932, **Amphenol** is one of the largest manufacturers of interconnect products in the world. The company designs, manufactures, and markets electrical, electronic, and fiber optic connectors, interconnect systems, and coaxial and specialty cables.

Amphenol has a diversified presence as a leader in high growth areas of the interconnect industry and provides solutions for customers in the automotive, broadband, industrial, information technology and data communications, military and aerospace, mobile devices, and mobile networks markets.

More info on www.amphenol.com

Amphenol
ENABLING THE ELECTRONICS REVOLUTION

Europe

FRANCE	Amphenol AIR LB	2 rue Clément Ader, ZAC de Wé - 08110 Carignan	+33 3 24 22 78 49
FRANCE	Amphenol SEFEE	Z.I. des Cazes – BP243 - 12402 Saint-Affrique Cedex	+33 5 65 98 11 00
GERMANY	Amphenol AIR LB GMBH	Am Kleinbahnhof 4 - 66740 Saarlouis	+49 6831 981 00
ITALY	Amphenol EUROPEAN SALES OPERATIONS	Via Barbaiana n.5 - 20020 Lainate - Milano	+39 293 254 214
UNITED KINGDOM	Amphenol INVOTEC	Unit 1-3, Hedging Lane Industrial Estate, Dosthill - Tamworth, B77 5HH	+44 1827 263 000
UNITED KINGDOM	Amphenol IONIX SYSTEMS	Prospect House, Taylor Business Park, Risle, Warrington, WA3 6HP	+44 1 942 685 200
UNITED KINGDOM	Amphenol LTD	Thanet Way, Whitstable - KENT, CT53JF	+44 1227 773 200
UNITED KINGDOM	Amphenol MARTEC	St Augustines Business Park, Swalecliffe Whitstable - Kent CT5 2QJ	+44 1227 793 733

North America

CANADA	Amphenol CANADA	605 Milner avenue - Toronto, Ontario	+1 416 291 0647
USA	Amphenol AEROSPACE OPERATIONS	40-60 Delaware street - Sidney, NY 13838	+1 800 678 0141
USA	Amphenol BORISH TECHNOLOGIES	4511 East Paris AVE - Grand Rapids, MI 49512	+1 616 554 9820
USA	Amphenol FSI	1300 Central Expwy N, Suite 100 - Allen, TX 75013	+1 214 547 2400
USA	Amphenol GRIFFITH ENTERPRISES	6000 East Coury Drive - Cottonwood, AZ 86326	+1 928 634 3685
USA	Amphenol NEXUS TECHNOLOGIES	50 Sunnyside Avenue - Stamford, CT 06902	+1 203 327 7300
USA	Amphenol PCD	72 Cherry Hill Drive - Beverly, MA. 01915	+1 978 624 3400
USA	Amphenol PRINTED CIRCUIT	Board Technology, 91 Northeastern Boulevard - Nashua, NH 03062	+1 603 324 4500
USA	Amphenol SV MICROWAVE	2400 Centrepark West Drive - West Palm Beach, FL	+1 561 840 1800
USA	Amphenol TIMES MICROWAVE	358 Hall Avenue - Wallingford, CT 06492	+1 800 867 2629

Asia

CHINA	Amphenol PCD CO.	Building 21, 1 st Liao Keng Industrial Zone, Shi Yan Street - Bao An District - Shenzhen 518108	+86 755 8173 8000/8286
INDIA	Amphenol INTERCONNECT INDIA	105 Bhosari Industrial Area - Pune 411 026	+91 20 27120363
JAPAN	Amphenol JAPAN	471-1, Deba, Ritto-City - Shiga 520 3041	+81 77 553 8501
KOREA	Amphenol DAESHIN	558 SongNae-Dong SoSa-Gu, Bucheon-city, Kyunggi-Do - 420-130	+81 32 610 3830/3845
SINGAPORE	Amphenol EAST ASIA	26/F, Railway Plaza, 39 Chatham Road South, Tsim Sha Tsui, Kowloon, Hong Kong	+65 6294 2128

Other Areas

AFRICA	Amphenol AFRICA	30 Impala Rd - Sandton 2146	+27 82 410 5179
ARGENTINA	Amphenol ARGENTINA	Av. Callao 930 2do piso Oficina B "Plaza" C1023 - AAP Buenos Aires	+54 11 4815 6886
AUSTRALIA	Amphenol AUSTRALIA PTY	2 Fiveways Blvd., Keysborough - Melbourne - Victoria 3173	+61 3 8796 8888
BRAZIL	Amphenol DO BRAZIL	Rua Diogo Moreira, 132, 20 andar, rooms 2001-2-3	+55 11 3815 1003
ISRAEL	Amphenol BAR-TEC	3 Hagavish Street, K fir-Barkan Bldg. East Industrial Zone - Kfar-Sava, 44102	+972 9 764 4100
MEXICO	Amphenol OPTIMIZE	Carretera Internacional Km 6.5, Col. Parque Industrial, Nogales, Sonora, C.P. 84094	+52 631 311 160
NEW ZEALAND	Amphenol PHITEK	Level 4, 2 Kingdon Street, Newmarket, Auckland 1023	+64 9 524 2984
RUSSIA	Amphenol RUSSIA	Yaroslavskaja Street 8 - 129164 Moscow	+7 495 937 6341
TURKEY	Amphenol TURKEY	Sun Plaza 15 Kat: 15 Maslak Hah. Bilim Sok. No.5 - Sisli/Istanbul, 34398	+90 212 367 92 19

Amphenol SOCAPEX



Amphenol Socapex

948, promenade de l'Arve BP29

74311 Thyez Cedex - France

+33 (0)4 50 89 28 00

contact@amphenol-socapex.fr

www.amphenol-socapex.com



For Technical Support

+33 (0)4 50 89 28 49

technicalsupport@amphenol-socapex.fr



To buy our products

+33 (0)4 50 90 28 00

contact@amphenol-socapex.fr

www.amphenol-socapex.com/amphenol/sales

Request a quote online at www.amphenol-socapex.com/quotation_request



Documentation

www.amphenol-socapex.com/documentation

To order a paper version of our catalogs, send an e-mail to communication@amphenol-socapex.fr

NEW

Check our product
inventory



Product Selectors
& 3D Files



www.amphenol-socapex.com

Follow Amphenol Socapex on social media :



This catalog uses paper from managed forests, PEFC & FSC labels, and is printed by a printer certified "Imprim'Vert®"

We reserve the right to modify our products in any way we deem necessary.
Any duplication is prohibited, unless approved in writing.

Designed by Amphenol Socapex
DOC-001035-ANG - February 2023