USBF TV *(USB-A)*

USB Connection System for Harsh Environment

With USB Field, you can insert a standard USB 2.0 cordset into a metallic plug which will protect it from shocks, dust and fluids.
No hazardous on-field cabling and grounding!
This metallic plug is connected into a receptacle, using a Tri Start Thread coupling mechanism (MIL-DTL-38999 series III type) with anti-decoupling device for high vibrations.

Applications

- Embedded Computers
- Data Acquisition and transmission in harsh environment
- Railways
- Battelfield Communication Systems
- Navy Systems

Data Transmission

USB Specification 2.0
Data Rate: Up to 480 Mb/s for High Speed USB

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
- 2 mechanical Coding / Polarization possibilities by the user (receptacle insert rotation)
- USBF TV plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 to 1500

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
- Fire Retardant / Low Smoke: UL94 V0 and NF F 16 101 & 16 102
- 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

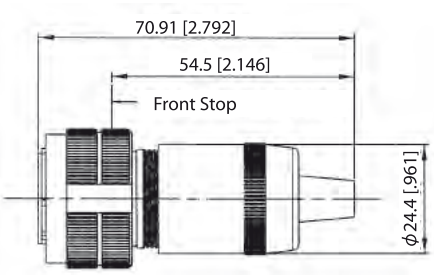
Part Number Code

Series **USB Field TV**	**USBF TV**	**2**	**1**	**G**
Shell Type **6:** Plug **2:** Square flange receptacle **2PE:** Square flange receptacle with metal backshell *(type 1)* & with metal backshell + plastic gland *(type 2)* **2PEM:** Square flange receptacle with backshell + metal gland *(only for back termination type 2 = Solder)* **7:** Jam nut receptacle **7PE:** Jam nut receptacle with metal backshell *(type 1)* & with metal backshell + plastic gland *(type 2)* **7PEM:** Jam nut receptacle with backshell + metal gland *(only for back termination type 2 = Solder)*				
Back Terminations *(Receptacles only)* **1:** Female USB-A **2:** Solder (4 tinned holes)				
Shells Material & Finish **N:** Aluminium shell - Nickel plating - ROHS compliant **G:** Aluminium shell - Olive Drab Cadmium plating **BZ:** Marine bronze shell - ROHS compliant				

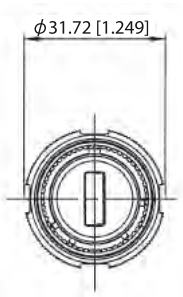
Examples:
- Olive Drab Cadmium Plug: USBF TV 6G
- Olive Drab Cadmium Square Flange Receptacle, USB-A back terminat°: USBF TV 21G
- Olive Drab Cadmium Jam Nut Receptacle, USB-A receptacle back terminat°: USBF TV 71G
- Nickel Jam Nut Receptacle, solder termination: USBF TV 72N

Plug

■ Shell type 6

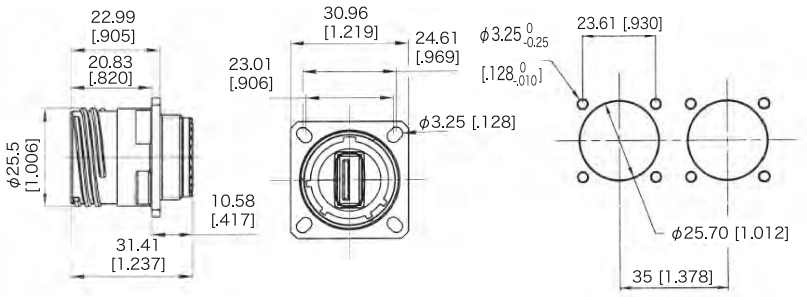


USBF TV 6 X



Receptacles

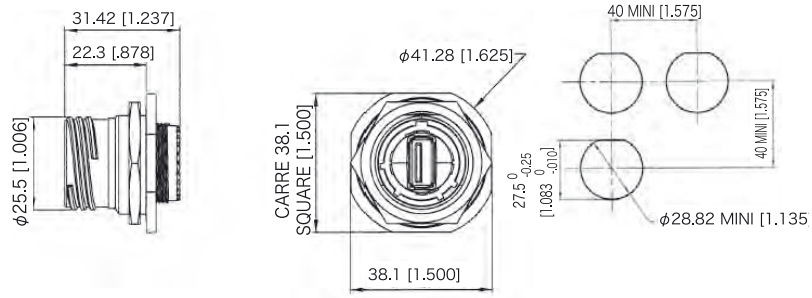
■ Square flange receptacle
4 mounting holes: Shell type 2



USBF TV 2 XX

Panel Drilling

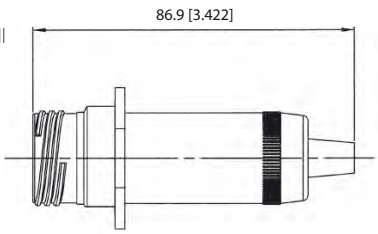
■ Jam nut receptacle
Hexagonal Nut mounting:
Shell type 7



USBF TV 7 XX

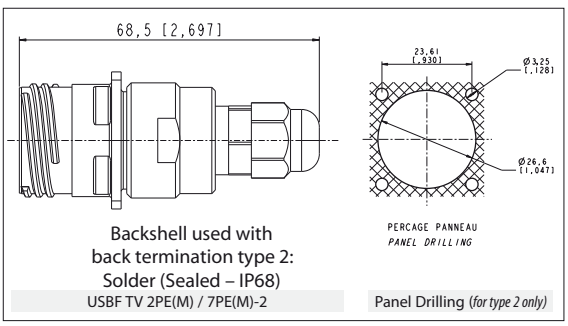
Panel Drilling

■ Receptacles with backshell
Shell type 2PE and 7PE



Backshell used with back termination type 1:
USB A receptacle (Not sealed)
Same panel drilling as USBFTV 2xx

USBF TV 2PE / 7PE-1

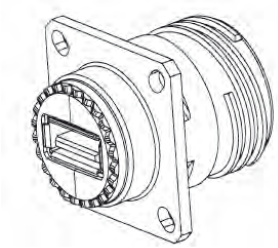


Backshell used with
back termination type 2:
Solder (Sealed – IP68)

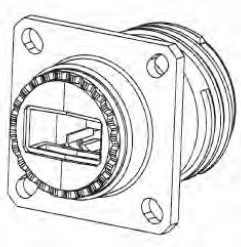
USBF TV 2PE(M) / 7PE(M)-2

Panel Drilling *(for type 2 only)*

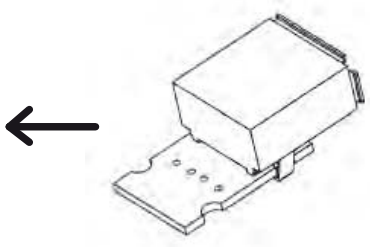
Back Terminations



Type 1: Female USB-A



Type 2: Solder 4 Tinned holes to solder your cable

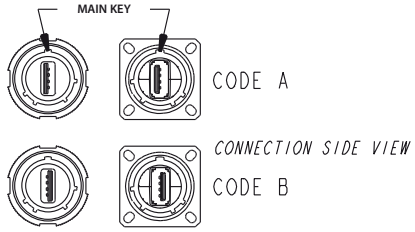


View of the PCB of the Type 2 version with
4 tinned holes for solder termination

Assembly Instructions

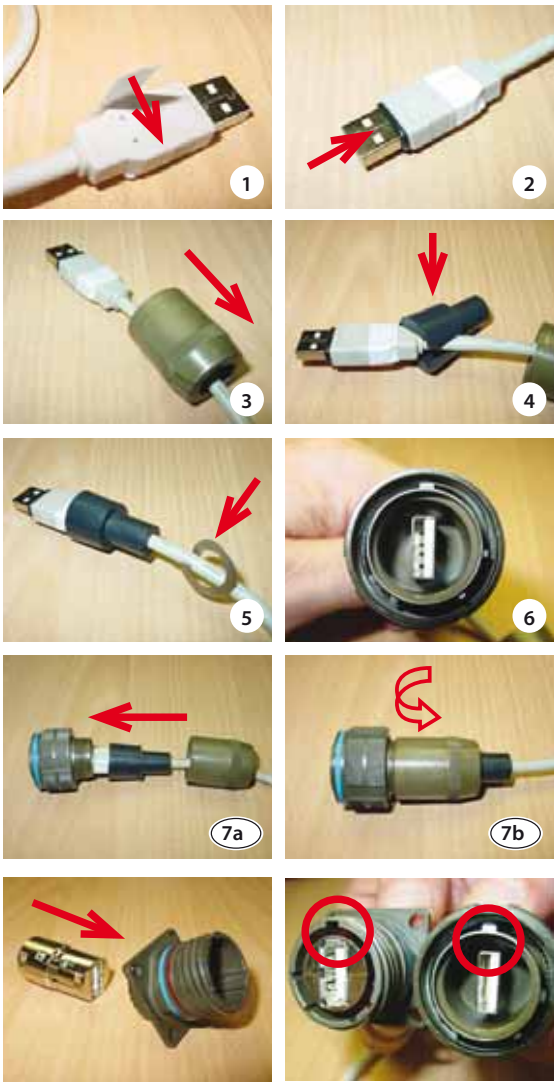
Can be used with most the USB cordset brands: No tools required!
Plug Assembly

1. Only if you need a full sealing (IP68): Install the white sticker around the plug, covering the 4 little holes of the overmolding
2. Insert the black O Ring around the front face of the USB A plug. This O Ring will ensure connection sealing
3. Insert the USB cordset into the metallic backshell
4. Insert the retention spacer laterally to the cable (this spacer is soft, in order to adapt to different shapes of overmolding) and slide the over-molding of the USB-A plug into this retention spacer
5. Insert the friction ring laterally to the cable
6. Choose the right coding (2 positions) and insert the USB-A plug into the protective plug. Note at this step, the main key is used for polarization.



7. Screw the backshell on the plug body. A wrench can be necessary to fully tighten it, and the connection to the receptacle can help

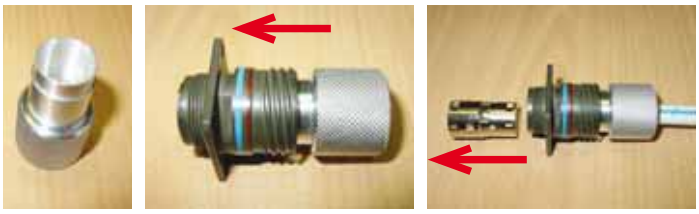
IMPORTANT NOTE
The connection sealing is not done by the black retention spacer (which is sloted), but by the front face ORing (fig. 2)



Receptacle Assembly

Insert the USB module from the rear. Reference is main key. Beware to have a coding compatible with the coding you used for the plug: on front view, the white shapes in the USBs must be on the same side.

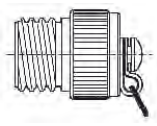
To remove the USB module, insert the removal tool **USBF ODE** from the Front, and push back the module.



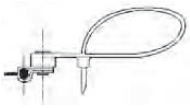
Accessories

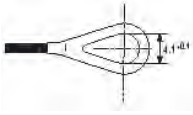
- **Metallic Caps**

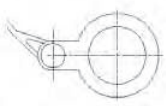
	USBF TVC	2	G
Connector Type **6:** Plug **2:** Square Flange Receptacle **7:** Jam Nut Receptacle			
Shells Material & Finish **N:** Aluminium shell - Nickel - ROHS compliant **G:** Aluminium shell - Olive Drab Cadmium **BZ:** Marine bronze shell - ROHS compliant			


Plug Cap

Receptacle Cap


Plug Cap end


Square flange receptacle cap end


Jam Nut receptacle cap end

- Panel Gasket for square flange receptacle (Thickness: 0,8 mm [.031]): JE15

- Receptacle Insert removal tool: USBF ODE

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Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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