

USBF TV

USB Connection System for Harsh Environment



Applications

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

ROHS COMPLIANT

"N": nickel plating
 "BZ": marine bronze

Data Transmission

USB Specification 2.0

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

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.

MAIN CHARACTERISTICS

- Sealed against fluids and dusts (IP67)
- Shock, Vibration and Traction resistant
- No cabling operation in field and no tools required
- Mechanical Coding / Polarization (2 positions)
- 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): IP67 (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: - 55°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 backshell			
7:	Jam Nut Receptacle			
7PE:	Jam Nut Receptacle with backshell			
Back Terminations (Receptacles only)				
1:	USB-A receptacle			
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

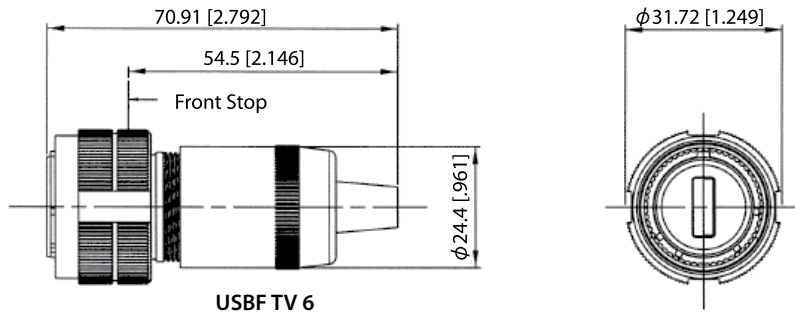


Worldwide Distributor of Connectors... Assembled in 48 Hours.

PEI-Genesis

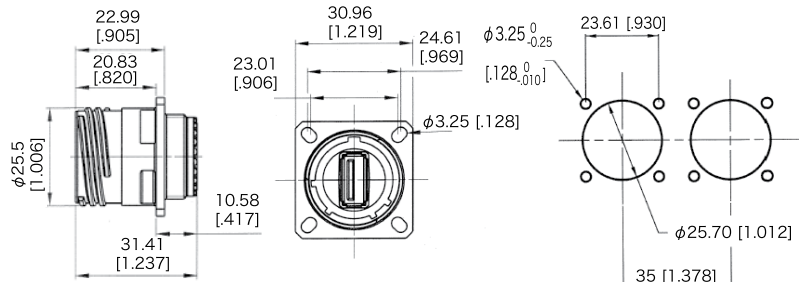
USA/Canada: 1-800-642-8750 • www.PeiGenesis.com
 UK: +44 (0) 8707 202560 • Eur/Ger: +49 (0) 7181 48 78 0

Plug



Receptacles

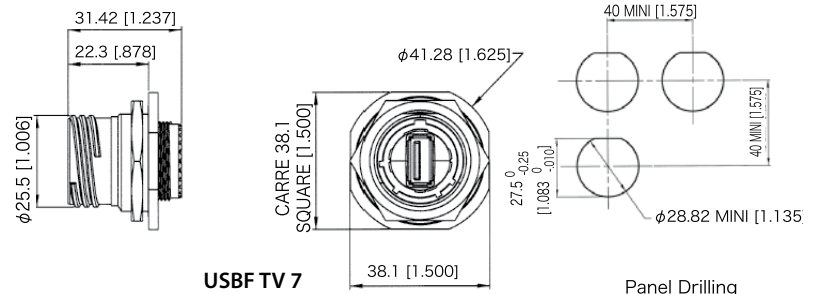
■ « 2 » Shell Square Flange



USB TV 2

Panel Drilling

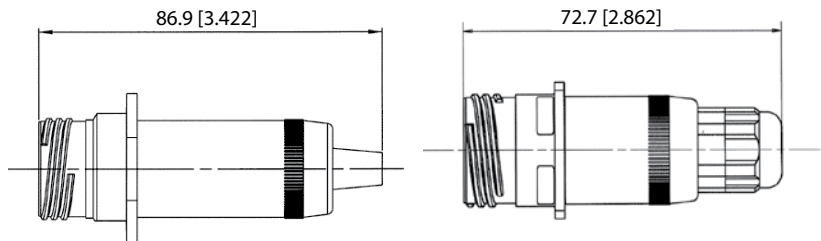
■ « 7 » Shell Jam Nut



USB TV 7

Panel Drilling

■ « 2PE » and « 7PE » Shells

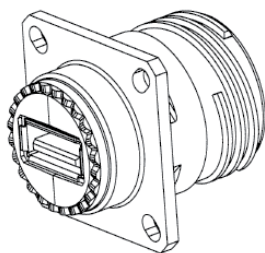


Backshell used with back termination type 1:
USB A receptacle (Not sealed)

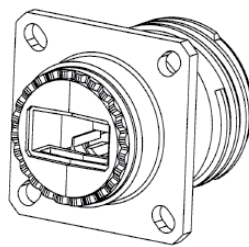
Backshell used with back termination type 2:
Solder (Sealed – IP67)
USB TV 2PE/7PE-2

USB TV 2PE/7PE-1

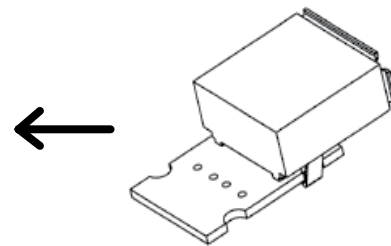
Back Terminations



Type 1: USB-A Receptacle



Type 2: Solder
4 Tinned holes to solder your cable



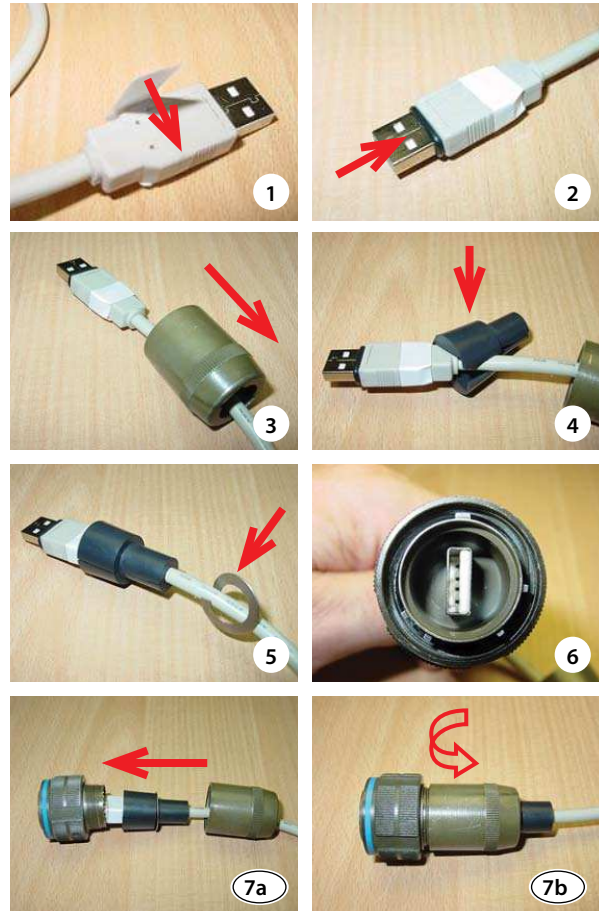
View of the PCB of the
Type 2 version with 4 tinned
holes for solder termination

Assembly Instructions

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

Plug Assembly

1. Only if you need a full sealing (IP67): 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 overmolding 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 slotted), but by the front face O Ring (see 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

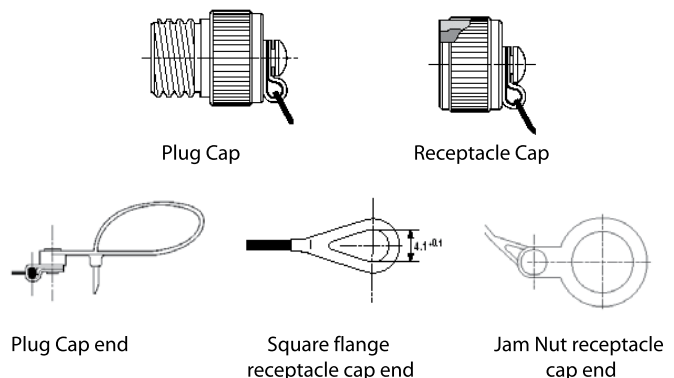
■ Metallic Caps

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



- Receptacle Insert removal tool: USBF ODE



USBFTV

Receptacles with 360° EMI backshells & PC Tails receptacles



RECEPTACLES WITH 360° EMI BACKSHELLS

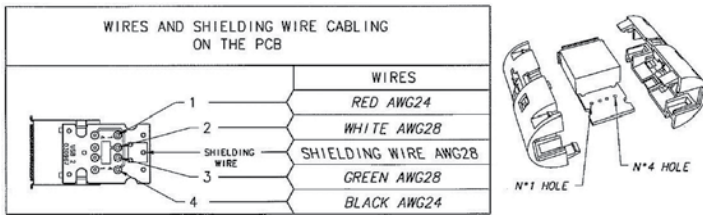
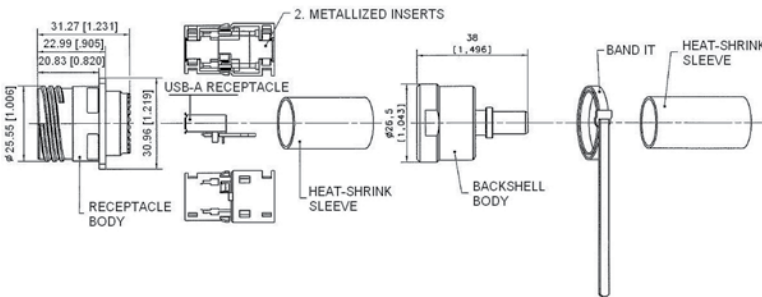
USBFTV Receptacles series with EMI backshells provide 360° shielding: same protection than the one proposed per Standard MIL-DTL-38999 serie III Connectors. We offer these EMI backshells with square flange and jam nut receptacles. The available platings are nickel or olive drab cadmium. With those solutions we suggest using our reinforced USB cable (shielded – zero halogen jacket). See page 31

We can provide those receptacles:
 • with cordset already soldered
 • without cordset

For 360° shielded USBFTV series receptacles, please consult us:

www.usbfield.com

EXAMPLE WITH A SQUARE FLANGE RECEPTACLE (PROVIDED WITHOUT CABLE)



IMPORTANT NOTE

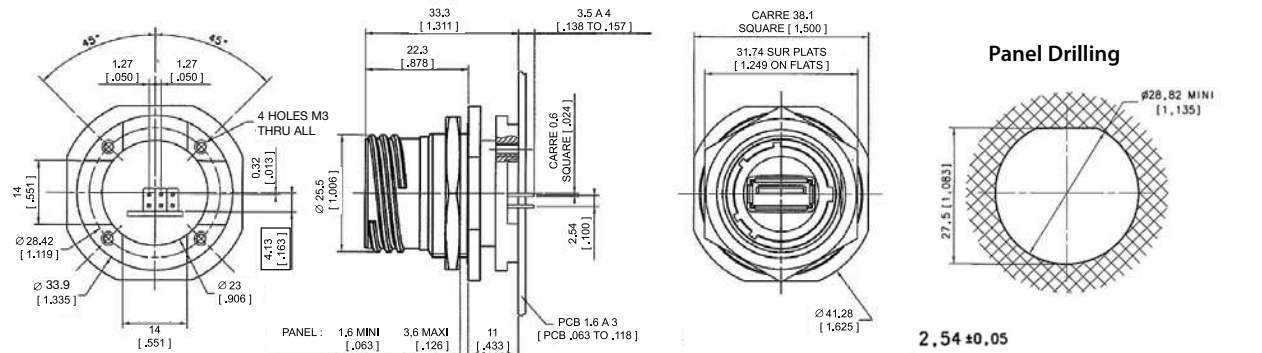
With receptacles provided without cable, customer will have to solder his cable on the PCB, please find below the cabling specification. If customer prefers to use his cable, please check with us compatibility with our EMI backshells:

www.usbfield.com

ROHS COMPLIANT
 "N": nickel plating

PC TAILS RECEPTACLE WITH « STAND OFF » SHELL

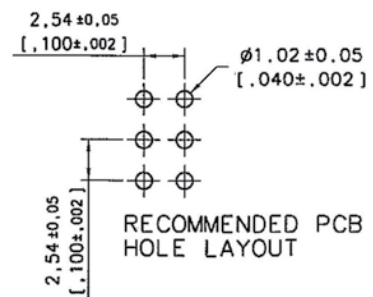
Those receptacles can be soldered directly on your PCB. A compound insures a transversal sealing and good performance in high-vibration environments. The shell of these receptacles are in the « Stand Off » style. They can be connected with rugged USBFTV series plugs.



PART NUMBERS:

Jam nut receptacle – Nickel: **USBFTV75NF459**

Square flange receptacle – Olive Drab Cadmium: **USBFTV75GF459**

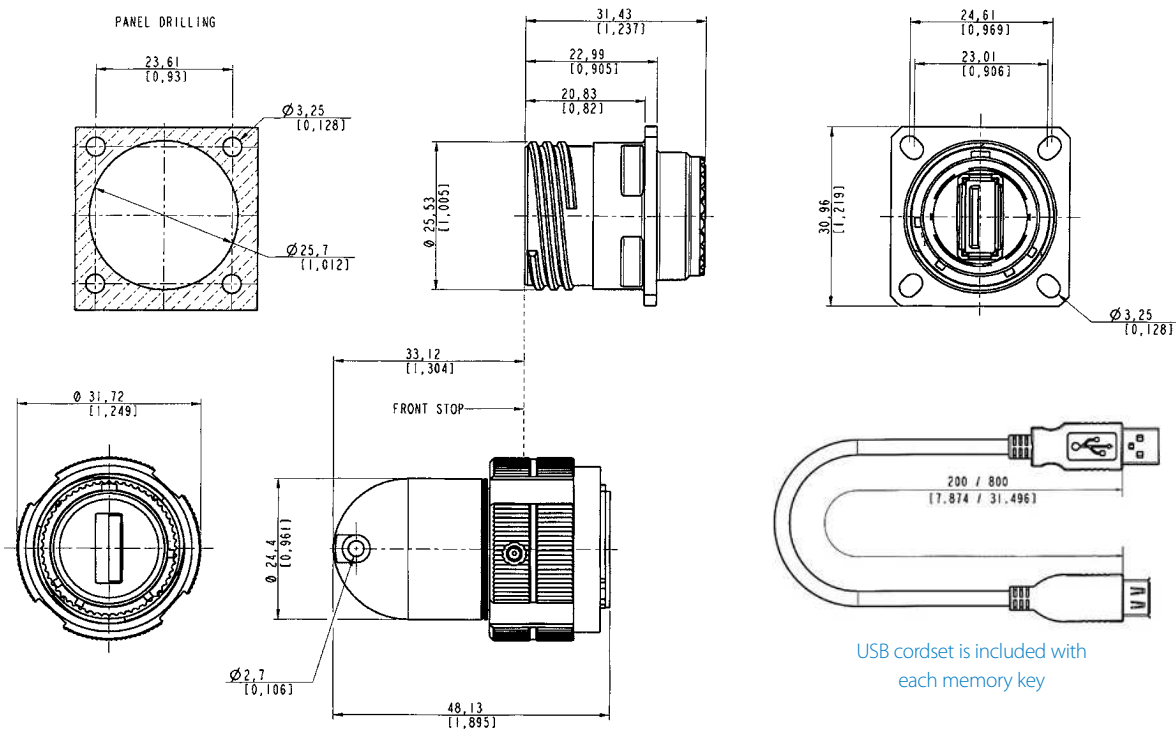


REINFORCED USBFTV MEMORY KEYS



We provide reinforced USB memory keys available in different capacities. They can be used ONLY with our USBFTV series receptacles. When mated on the receptacle, the system is IP67.

Dimensions of rugged USBFTV Key shown with receptacle USBFTV21x



USB cordset is included with each memory key

ROHS COMPLIANT

"N": nickel plating
"B": black coating

DEFINITION OF PART NUMBER

USBFTV KEY 6 A 0256 N CAP

Beginning of every USBFTV Key part number. Remains unchanged.

Coding position:
A: coding A
B: coding B
NB: please check the coding of your USBFTV receptacle*

Capacity of your USBFTV Key:
0256
0512
1024
Other capacity, please consult us at contact@rjfield.com

Plating:
"N": nickel plating
"G": olive drab cadmium
NB: please check the plating of your USBFTV receptacle

Cap: With cap
Blank: Without cap

* The coding can be changed on the receptacle using our tool USBFODE

EXAMPLE: **USBFTVKEY6A0256N**: USBFTV KEY – CODING A – CAPACITY OF 256MO – NICKEL PLATING

EXAMPLE: **USBFTVKEY6A1024GCAP**: USBFTV KEY – CODING A – CAPACITY OF 1024MO – OLIVE DRAB CADMIUM PLATING - PROTECTIVE CAP

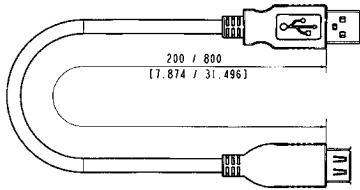
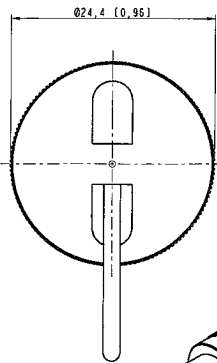
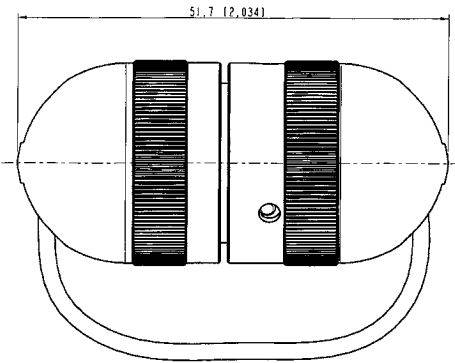
REINFORCED USB MEMORY KEYS



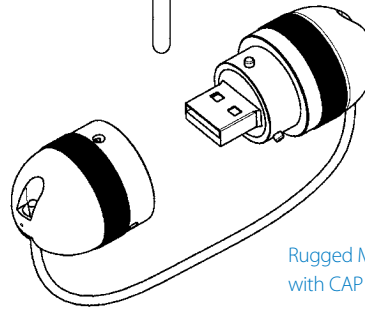
We provide reinforced USB memory keys available in different capacities. When mated, the system is IP67. Shells are metallic with 1/4 turn bayonet coupling.

Dimensions of rugged USBF Key:

ROHS COMPLIANT



USB cordset is included with each memory key



Rugged Metallic USB KEY with CAP SEALING : IP 67

DEFINITION OF PART NUMBER

USBF KEY

0256

N

Beginning of every USB Key part number. Remains unchanged.

Capacity of your USBF Key:
0256
0512
1024
Other capacity, please consult us at contact@jfield.com

Shell finish:
N: Natural
G: Green
B: Black

EXAMPLE: **USBFKEY0256N**: USB MEMORY KEY - CAPACITY OF 256MO - SHELL FINISH : NATURAL

EXAMPLE: **USBFKEY1024G**: USB MEMORY KEY - CAPACITY OF 1024MO - SHELL FINISH : GREEN