



USBF TV

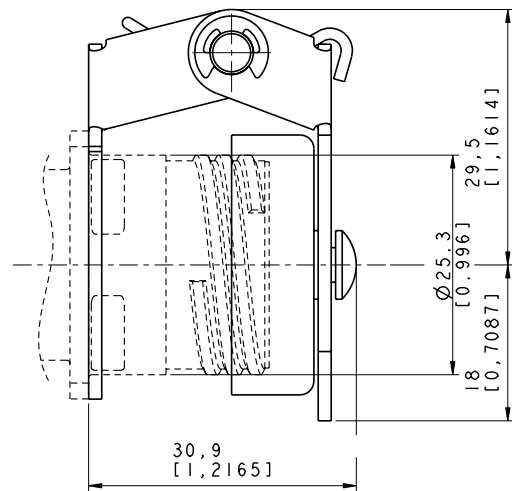
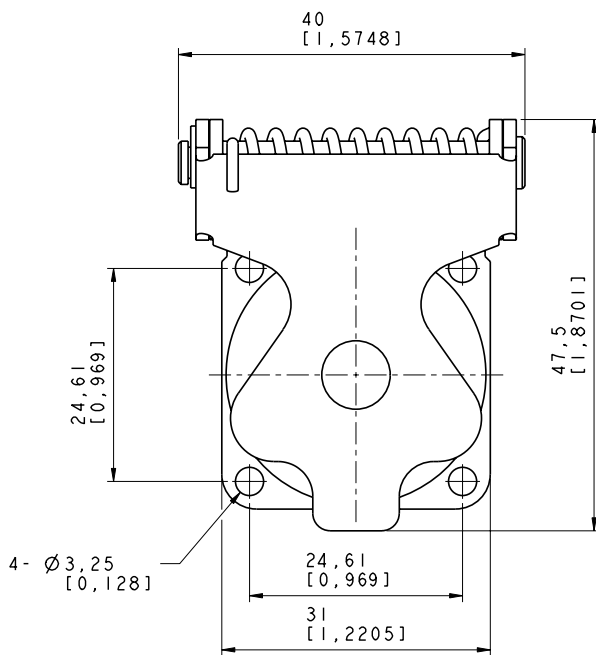
Self Closing Cap (SCC Series)



This Self Closing cap automatically protects the USBF TV (type A) & USBBF TV (type B) square flange receptacles (MIL-DTL-38999 type), protecting your system from dust and water projection. A spring automatically closes the upper part of the cap when the USB plug is removed from the receptacle.

IMPORTANT NOTE

Metal Self Closing cap are sold separately (without receptacle)



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

PART NUMBER: JE15



PART NUMBER:

Self closing cap: **USBFTVSCC**

Remark: Compatible with USBFTV (type A) & USBBFV (type B) square flange receptacles only:
USBFTV2XX (see page 25)
USBBFV2XX (see page 37)



USBF TV

Transversally Sealed Receptacle



SEALED RECEPTACLE In some applications, a transversal sealing for the receptacle is a « must ». This will prevent fluids and dust from going through the receptacle when plug or cap are not mated to the receptacle. The sealed solution (version "S") has a compound at the rear of the receptacle below. In addition, the Sealed USBF TV has been successfully tested in very high vibration corresponding to airplane applications.

Applications

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

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-de-coupling 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

Data Transmission

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

Environmental Protection

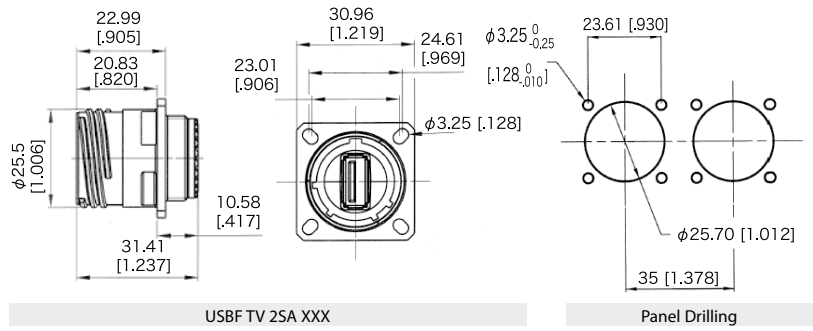
- Sealing (when mated): IP68 (Temporary immersion)
- Salt Spray: 48 h with Nickel plating
> 500 h with Olive Drab Cadmium
1000 h with marine bronze shell
- Fire Retardant / Low Smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 1micro s
- Shocks: IK06: 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

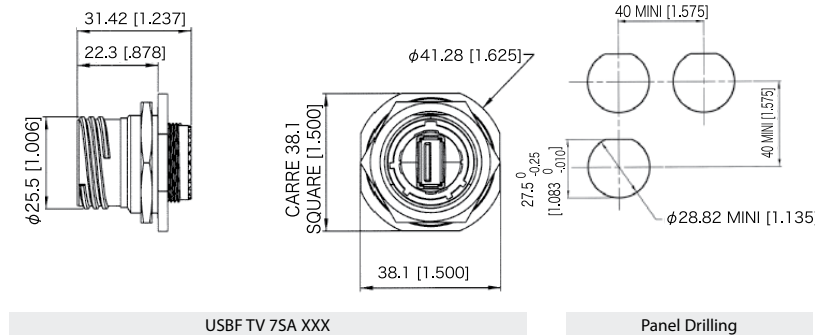
Series USB Field TV	USBF TV	2PES	A	2	N	03	A
Shell Type							
2S : Square flange receptacle							
2PES: Square flange receptacle + backshell + plastic gland							
2PEMS: Square flange receptacle + backshell + metal gland							
7S: Jam nut receptacle							
7PES: Jam nut receptacle + backshell + plastic gland							
7PEMS: Jam nut receptacle + backshell + metal gland							
Coding							
"A" (Standard) or "B"							
Back Terminations							
2: Rugged USB cable (see corresponding datasheet page 42)							
Shells Plating							
N: Nickel							
G: Olive drab cadmium plating							
USB cable length							
03: 30 cm [11.81 inches]							
05: 50 cm [19.68 inches]							
10: 1 meter [39.37 inches]							
USB cable end							
A: Standard USB-A plug							
OPEN: Open cable (no connector)							

Receptacles

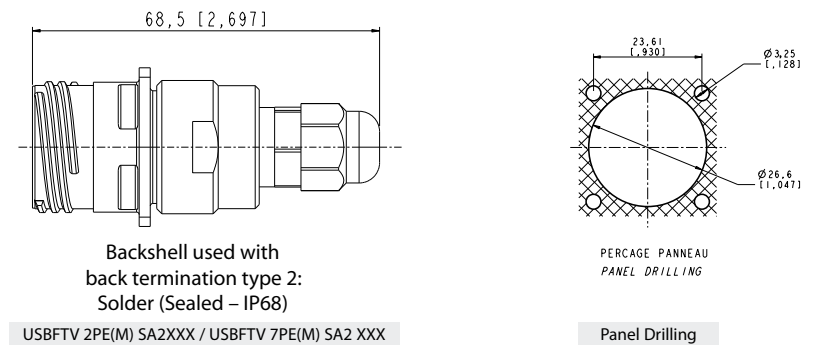
- Square flange receptacle
4 mounting holes: Shell type 2



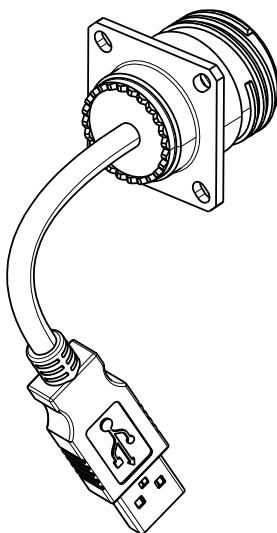
- Jam nut receptacle
Hexagonal Nut mounting:
Shell type 7



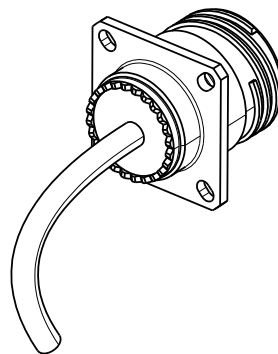
- Receptacles with backshell:
Shell type 2PE(M) and 7PE(M)



Cordset End



USB Cable end type "A"



USB Cable type "OPEN"

Reinforced USBFTV MEMORY KEYS

Derived from MIL-DTL-38999 series III specification • from 512 MB to 64 GB



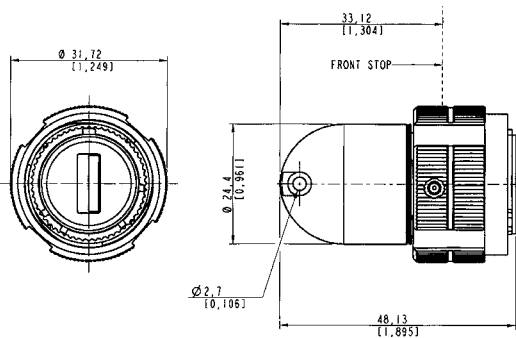
We provide reinforced USB memory keys available in different capacities. They can be used ONLY with our USBFTV series receptacles. When mated on the receptacle, the system is IP68.

Environmental Protection

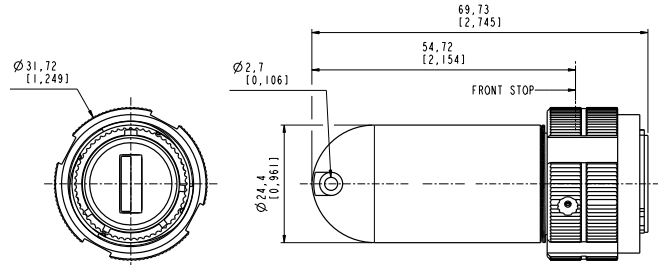
- Sealing: IP68 (when mated)
- Salt Spray: 48 h with Nickel plating (ROHS)
> 500 h with Olive Drab Cadmium
- Vibrations: MIL-STD-810F method 514.5 fig 514.5.C cat 14
- Temperature Range: - 40°C / +85°C (MIL-STD-810F)
- Data transmission during vibration & temperature tests

Other features

- Type: USB2.0
- Voltage: 5V DC - 500 mA max
- Electromagnetic compatibility: 89/336/EEC and Part 15 Class B



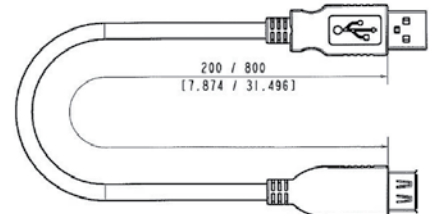
Up to memory size 4GB



From 8 to 64 GB

IMPORTANT NOTE

USBFTV memory key to be used with USBF TV receptacle. See page 25 to 30



USB cordset is included with each memory key

DEFINITION OF PART NUMBER

USBFTV KEY 6	A	64	N	CAP
Beginning of every USBFTV Key part number. Remains unchanged.	CODING POSITION: A: coding A B: coding B	CAPACITY OF YOUR USBFTV KEY: 0512 1024 2048 4096 8192 16384 16384GT** 32768 64 Other capacity, please consult us at contact@usbfield.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 counter part using our tool USBFODE			

** GT: Fast Data Transfert

EXAMPLE: **USBFTVKEY6A0512N:** USBFTV KEY – CODING A – CAPACITY OF 512MB – NICKEL PLATING

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



Reinforced USB Memory Keys

Now available up to 64GB



We provide reinforced USB memory keys available in different capacities. When mated, the system is IP68. Shells are metallic with 1/4 turn bayonet coupling.

Dimensions of rugged USBF Key:

Environmental Protection

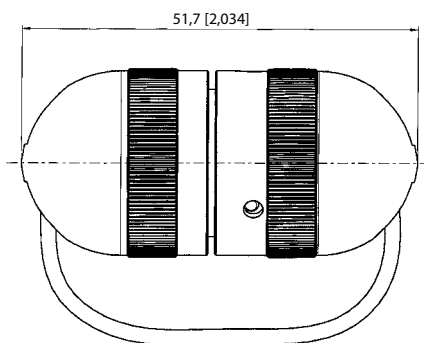
- Sealing: IP68 (when closed)
- Salt Spray: 48 h with Nickel plating (ROHS)
> 96 h with Black coating (ROHS)
> 500 h with Olive Drab Cadmium
- Vibrations: MIL-STD-810F method 514.5 fig 514.5.C cat 14
- Temperature Range: - 40°C / +85°C (MIL-STD-810F)

Other features

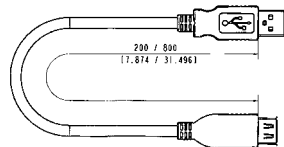
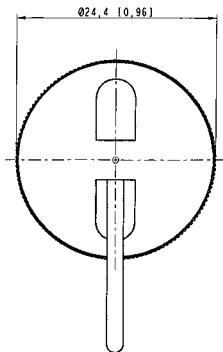
- Type: USB2.0
- Voltage: 5V DC - 500 mA max
- Electromagnetic compatibility: 89/336/EEC and Part 15 Class B

IMPORTANT NOTE

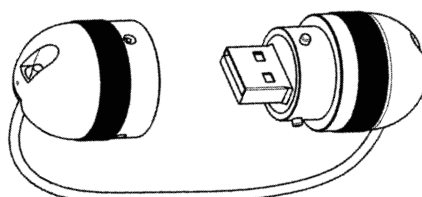
Compatible with any standard USB port



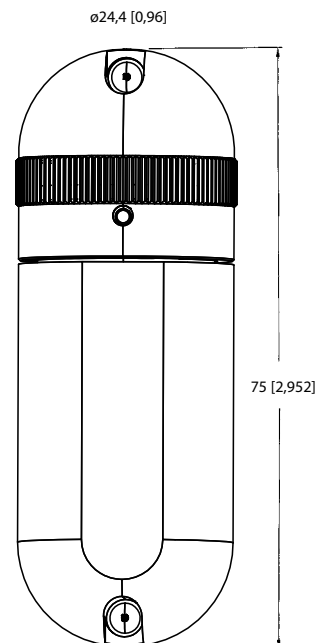
Up to memory size 4GB



USB cordset is included with each memory key



Rugged Metallic USB KEY with CAP SEALING: IP 67



From 8 to 64 GB

DEFINITION OF PART NUMBER

USBF KEY

Beginning of every USB Key part number. Remains unchanged.

8192

Capacity of your USBF Key:

0512 | 1024 | 2048 | 4096 | 8192 | 16384 | 16384GT* | 32768 | 64

Other capacity, please consult us at contact@usbfield.com

N

Shell finish:

- N:** Natural
- G:** Green
- B:** Black

* GT: Fast Data Transfert

EXAMPLE: **USBFKEY0512N**: USB MEMORY KEY - CAPACITY OF 512MB - SHELL FINISH: NATURAL

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

High Reliability USB 2.0 Cordsets

Derived from MIL-DTL-38999 series III specification



General Construction: this is a USB-2.0 cable containing one 28 AWG 90Ω characteristic impedance data pair, two 24 AWG power conductors, overall SFTP shields (SFTP = double shielding, Braid and foil), jacketed in black UV resistant Polyurethane HFFR*. Designed for fixed or portable applications in industrial and harsh environments.

*HFFR: Halogen Free Flame Retardant.

Jacket Compound Specification:

Halogen Free Flame Retardant Polyether-based Polyurethane. Glossy finish. Excellent hydrolysis resistance. High microbial resistance. UV resistant. High flexibility.

Applications

- Robotics
- Motion Control
- Railways
- CNC Machines
- Battelfield communication
- Industrial Process

PHYSICAL CHARACTERISTICS

DATA CONDUCTORS	bare copper, 7/0.12 mm nom (28 AWG)
DATA INSULATION	0.9 mm nom
COLOR DATA PAIR	Green & white
POWER CONDUCTORS	Tinned copper, 7/0.2 mm (24 AWG)
POWER INSULATION	1.1 mm nom
COLOR POWER WIRE	Red & Black
SHIELDS	Foil: providing 100% coverage, in contact with tinned copper drain wire and an overall braid providing 65% nom. coverage made of 16x5/0.1 mm tinned copper strands
JACKET	PU compound
COLOR JACKET	Black
WEIGHT	26 lbs/mft (38 kg/km)
OUTSIDE DIAM.	0.20 inch (5.1 mm nom. +/- 0.15)
MIN BEND RADIUS	45.9 mm (9x O. D.)
<i>(During installation)</i>	
MIN BEND RADIUS	25.5mm (5 x O.D.)
<i>(During operation)</i>	
TEMPERATURE installation	Plus 60°C, minus 5°C
TEMPERATURE operational	Plus 85°C, minus 40°C

ELECTRICAL CHARACTERISTICS

DC RESISTANCE	94 Ohms/Km @ 20°C
IMPEDANCE	90 +/- 13 Ohms 1-400 MHz
ATTENUATION	
1 KHZ	8 db/100m max.
4 MHZ	15,6 db/100m max.
24 MHZ	38 db/100m max.
96 MHZ	76 db/100m max.
200 MHZ	128 db/100m max.
400 MHZ	232 db/100m max.
CAPACITANCE 2X28 AWG	54pF/m nom. @ 1KHz
CAPACITANCE	2.0 pF/m max. @ 1KHz
UNBALANCE	(wire to ground)
DIELECTRIC STRENGTH	VAC/1 min - 500 V/Min
RESISTANCE UNBALANCE	2% max. @ 20°C
VELOCITY OF PROPAGATION	65% min. 68% max.

CORDSETS WITH A USB A PLUG OVERMOLDED ON EACH END (OUT OF USB SPECIFICATION > 5 M)

Length (m/ft)	Part Number
6 m / 19.68 ft	USB2 AA 600 PU HFFR
7 m / 22.96 ft	USB2 AA 700 PU HFFR
8 m / 26.24 ft	USB2 AA 800 PU HFFR
9 m / 29.52 ft	USB2 AA 900 PU HFFR
10 m / 32.80 ft	USB2 AA 1000 PU HFFR

REEL OF DRUM (WITHOUT USB PLUG ON ENDS)

Length	PN
300 m / ~ 984 ft	190-040567-00

CORDSETS WITH A USB A PLUG OVERMOLDED ON EACH END (UNDER USB SPECIFICATION ≤ 5M)

Length (m/ft)	Part Number
0.5 m / 1.64 ft	USB2 AA 050 PU HFFR
1 m / 3.28 ft	USB2 AA 100 PU HFFR
1.50 m / 4.92 ft	USB2 AA 150 PU HFFR
2 m / 6.56 ft	USB2 AA 200 PU HFFR
2.50 m / 8.2 ft	USB2 AA 250 PU HFFR
3 m / 9.84 ft	USB2 AA 300 PU HFFR
3.50 m / 11.48 ft	USB2 AA 350 PU HFFR
4 m / 13.12 ft	USB2 AA 400 PU HFFR
4.5 m / 14.76 ft	USB2 AA 450 PU HFFR
5 m / 16.40 ft	USB2 AA 500 PU HFFR



USBFTV SC

Spring Loaded Receptacle



This product offers a new coupling solution, particularly for applications requiring quick disconnect. The system consists of a circular spring within the receptacle keeping the plug mated, and creating an internal coupling mechanism.



MAIN CHARACTERISTICS

- Sealed against fluids and dusts (IP67)
- Shock, Vibration and Traction resistant
- No cabling operation in field and no tools required
- Improved EMI protection
- Mating cycles: 500
- Mating force after 500 cycles: 40 N
- Unmating force after 500 cycles: 55 N

Environmental Protection

- Sealing (when mated): IP67 (Temporary immersion)
- Salt Spray: 48 h with Nickel plating
> 500 h with Olive Drab Cadmium
- 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

Applications

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

Data Transmission

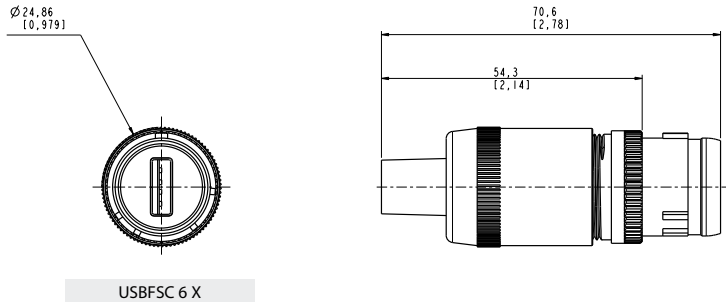
USB Specification 2.0
Data Rate: Up to 480 Mb/s for High Speed USB

Part Number Code

Series USBFTV Spring Loaded	USBF SC	2	1	G
Shell Type				
6:	Plug			
1:	Inline receptacle			
2:	Square flange receptacle			
7:	Jam nut receptacle			
Back Terminations (Receptacles only)				
1:	Female USB-A			
2:	Solder (4 tinned holes) - Not available for shell type "1" (Inline receptacle)			
Shells Material & Finish				
N:	Aluminium shell - Nickel plating - ROHS compliant			
G:	Aluminium shell - Olive Drab Cadmium plating			
BZ:	Marine bronze shell - ROHS compliant			

Plug

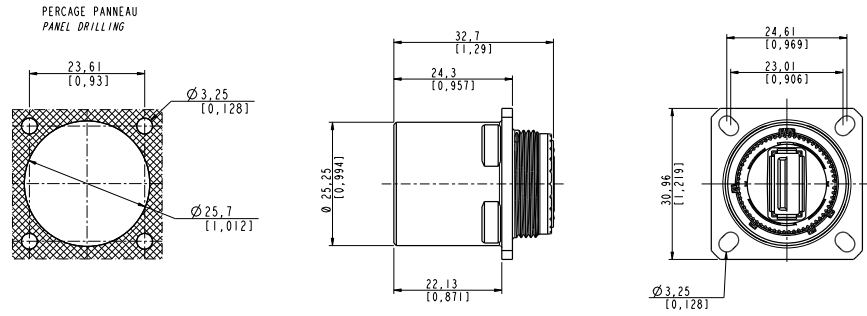
- Shell type 6



USBFSC 6 X

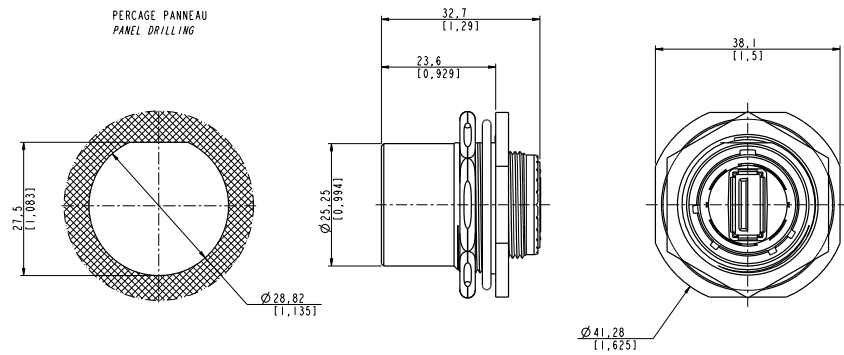
Receptacles

- Square flange receptacle
4 mounting holes: Shell type 2



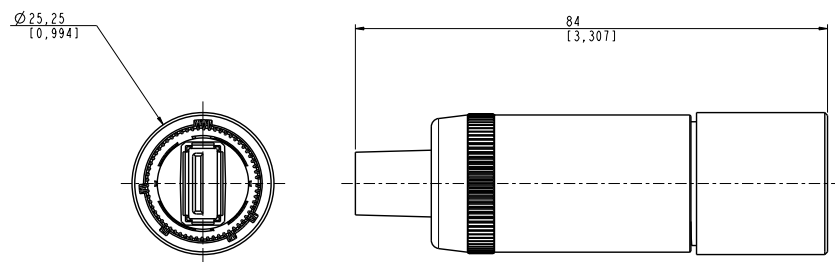
USBFSC 21 X

- Jam nut receptacle
Hexagonal Nut mounting:
Shell type 7



USBFSC 71 X

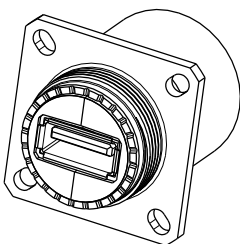
- Inline Receptacles:
Shell type 1



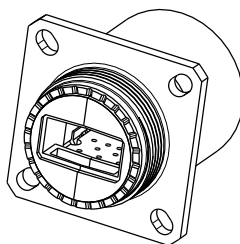
USBFSC 11 X

Back Terminations

USBFSC Back Terminations Receptacles



Type 1: Female USB-A



Type 2: Solder (4 tinned holes)



USBFTV

Receptacles with 360° EMI backshells stand off receptacles



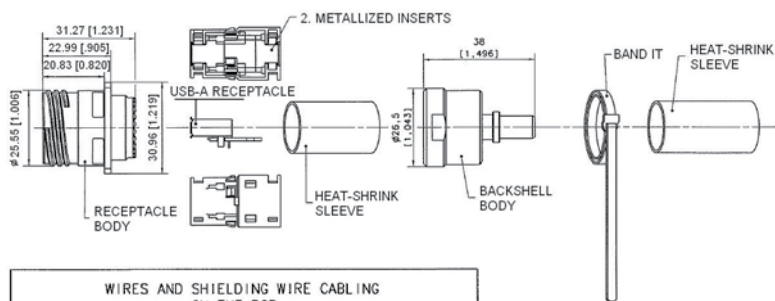
USBFTV Receptacles series with EMI backshells provide 360° shielding; same protection than the one proposed per Standard MIL-DTL-38999 serie III Connectors. We offer these EMI backshells with square flange and jam nut receptacles. The available platings are nickel or olive drab cadmium. With those solutions we suggest using our reinforced USB cable (shielded – zero halogen jacket). See page 33.

We can provide those receptacles:

- with cordset already soldered
- without cordset

RECEPTACLES WITH 360° EMI BACKSHELLS

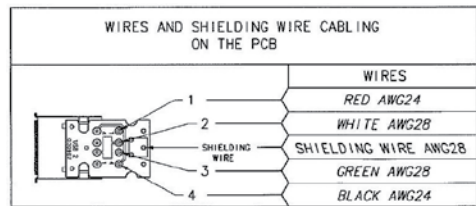
EXAMPLE WITH A SQUARE FLANGE RECEPTACLE (PROVIDED WITHOUT CABLE)



IMPORTANT NOTE

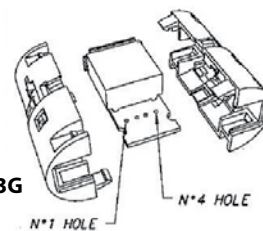
With receptacles provided without cable, customer will have to solder his cable on the PCB, please find below the cabling specification. If customer prefers to use his cable, please check with us compatibility with our EMI backshells:

www.usbfield.com



PART NUMBERS:

- Jam nut receptacle – Nickel: **KIT40245**
- Jam nut receptacle – Olive Drab Cadmium: **KIT40245G**
- Square flange receptacle – Nickel: **KIT40263**
- Square flange receptacle – Olive Drab Cadmium: **KIT40263G**



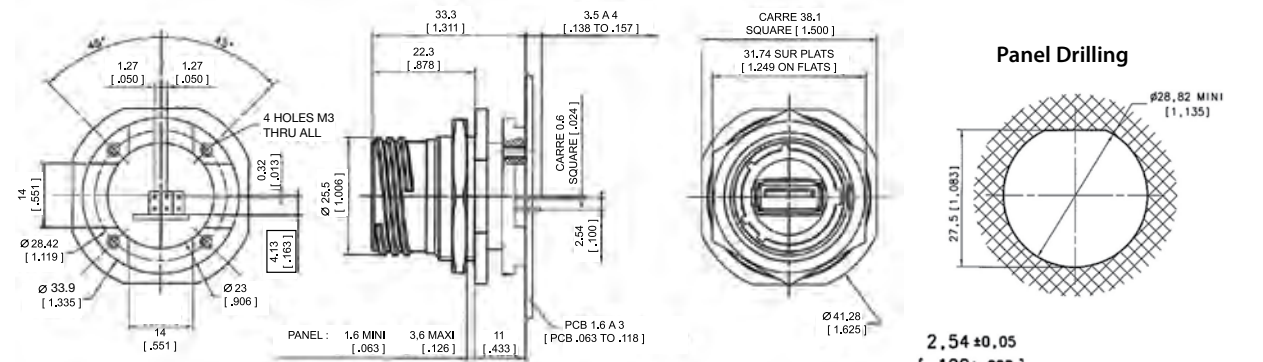
USBFTV - special

Amphenol



STAND OFF RECEPTACLE

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** (coding "A")
- Jam nut receptacle – Olive Drab Cadmium: **USBFTV75GF459** (coding "A")
- Square flange receptacle – Nickel: **USBFTV25NF459** (coding "A")
- Square flange receptacle – Olive Drab Cadmium: **USBFTV25GF459** (coding "A")



USBBF TV (USB-B)

USB Connection System for Harsh Environment



USB Field allows you to use a standard USB 2.0 connection in harsh environments :

- 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
- Plug retention in the receptacle: 100N in the axis
- Mating cycles: 500 to 1500

Applications

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

Back terminations available:

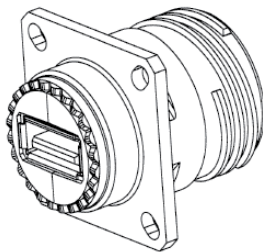
- a USB-A receptacle
- solder: 4 tinned holes on the PCB to solder your wires

Part Number Code

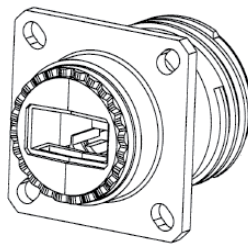
Series USBB Field TV	USBBF TV	2	1	G
Shell Type				
6:	Plug			
2:	Square flange receptacle			
2PE:	Square flange receptacle with metal backshell (<i>type 1</i>) & with metal backshell + plastic gland (<i>type 2</i>)			
2PEM:	Square flange receptacle metal gland (only for soldering back termination type 2)			
7:	Jam nut receptacle			
7PE:	Jam nut receptacle with metal backshell (<i>type 1</i>) & with metal backshell + plastic gland (<i>type 2</i>)			
7PEM:	Jam nut receptacle metal gland (only for soldering back termination type 2)			
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			

Examples: - Plug-cadmium plating: USBBF TV 6G
 - Square Flange Receptacle-USB-A back terminat^o -cadmium plating: USBBF TV 21G
 - JamNut Receptacle, solder terminat^o -nickel plating: USBBF TV 72N

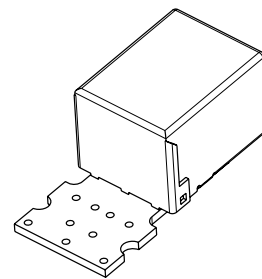
Back Terminations



Type 1: Female USB-A

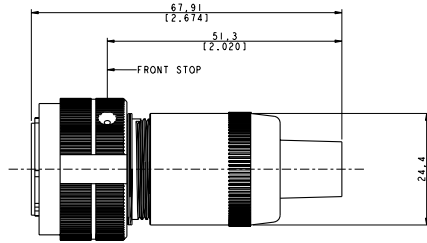


Type 2: Solder (4 tinned holes)

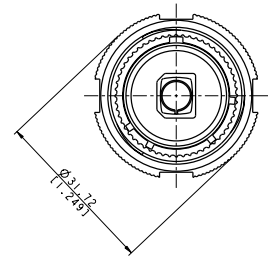


Plug:

- 6 Shell



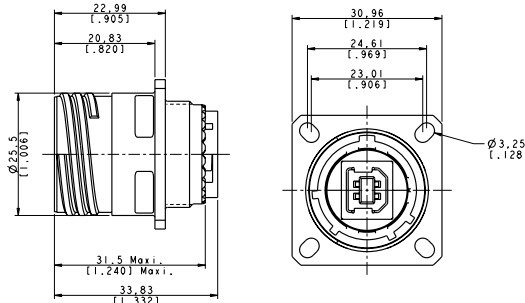
USBBFTV 6 X



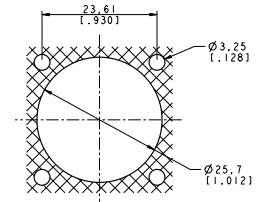
Panel Drilling

Receptacles:

- Shell type 2 - Square flange receptacle

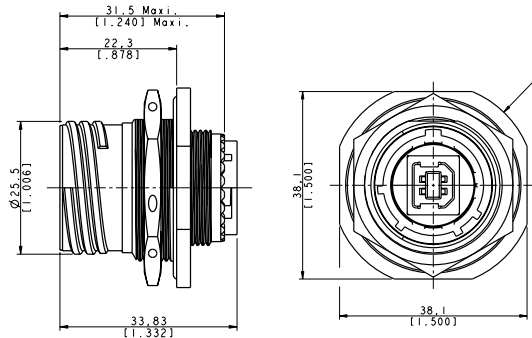


USBBFTV 2 XX

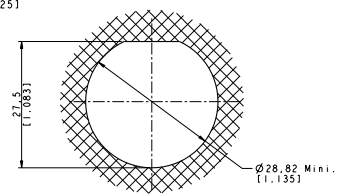


Panel Drilling

- Shell type 7 - Jam nut receptacle

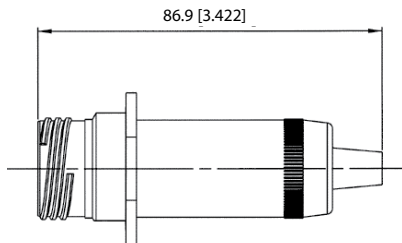


USBBFTV 7 XX

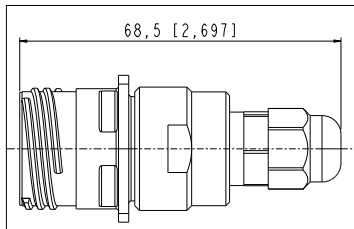


Panel Drilling

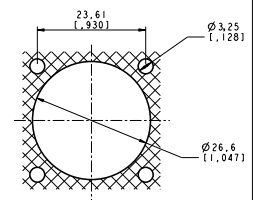
- «2PEM» and «7PEM» Shells with Backshell to protect Back termination from dust, shocks and vibration.



Backshell used with back termination type 1:
USB A receptacle
Same panel drilling as USBBFTV 2xx
USBF TV 2PE / 7PE-1



Backshell used with
back termination type 2:
Solder (Sealed - IP68)
USBF TV 2PE(M) / 7PE(M)-2



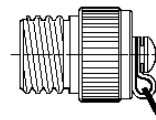
PERCAGE PANNEAU
PANEL DRILLING

Panel Drilling (for type 2 only)

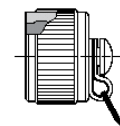
Accessories

- Metallic Caps (same as USB-A version - see page 31)

USBF TVC		2	G
Connector Type			
6:	Plug		
2:	Square Flange Receptacle		
7:	Jam Nut Receptacle		
Shells Material & Finish			
N:	Nickel plating - ROHS compliant		
G:	Olive Drab Cadmium plating		

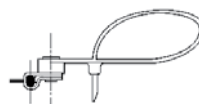


Plug Cap

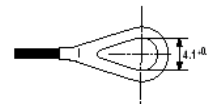


Receptacle Cap

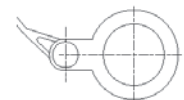
- Panel Gasket for square flange receptacle
(Thickness: 0,8 mm [031]); JE15



Plug Cap end



Square flange
receptacle cap end



Jam Nut receptacle
cap end

- Receptacle Insert removal tool: USBBF ODE



USBBF TV

Transversally sealed receptacle



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
- Battlefield 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	USBBF TV	7S	2	G	10	OPEN
USBB Field TV						
Shell Type						
2S:	Sealed Square flange receptacle					
2PES:	Sealed Square flange receptacle + backshell + plastic gland					
2PEMS:	Sealed Square flange receptacle + backshell + metal gland					
7S:	Sealed Jam nut receptacle					
7PES:	Sealed Jam nut receptacle with backshell					
7PEMS:	Sealed Jam nut receptacle + backshell + metal gland					
Back Terminations						
2:	Rugged USB cable					
Shells Plating						
N:	Nickel					
G:	Olive drab cadmium					
USB cable length						
03:	30 cm [11.81 inches]					
05:	50 cm [19.68 inches]					
10:	1 meter [39.37 inches]					
USB cable end						
A:	Standard USB-A plug					
OPEN:	Open USB cable (no connector)					

- Examples:
- Olive Drab Cadmium Jam Nut Receptacle: USBBF TV 7 XX
 - Nickel Square Flange Receptacle: USBBF TV 2 XX