USB3CFTV
USB Type-C connection system for harsh environment

Description
USB3CFTV is a ruggedized solution for USB Type-C standard connectors. Based on MIL-DTL-38999 series III type, plugs, and receptacles are mated thanks to a Tri-Start thread coupling mechanism. This solution strengthens and protects your devices against fluids, dust, shocks, and disconnection due to vibrations.

The assembly of your standard USB type-C cordset into our ruggedized plugs does not require any tool and can be easily performed on the field. In addition, reversibility for data and power transmission is achieved for both plug and receptacles.

Benefit from USB type-C flexibility to design many different data, power delivery, and video configurations with all the advantages of Amphenol Socapex know-how in ruggedized connector solutions.

Main features

Main characteristics:
- Thread coupling, MIL-DTL-38999 series III type
- Shell size 11
- Shock, vibration, and traction resistance
- No tools are required for cabling adaptation
- EMI protection: Shielding continuity
- Mating plug/receptacle cycles: 500 at least

Environmental protection:
- Sealing: IP68 unmated and mated (with sealed USB3 Type-C cordset)
- Material and platings:
  - 48 h - Aluminum shell with Nickel plating
  - 500 h - Aluminum shell with Black zinc nickel plating
  - 500 h - Aluminum shell with Olive drab cadmium plating
  - 500 h - Aluminum shell with Tin-zinc plating
  - 500 h - Marine bronze shell
  - 500 h - Stainless steel passivated
- Shock resistance: IK06 onto mated pair
- Operating temperature: -40°C to +85°C (-40°F to 185°F)

Data transmission and Power:
- Compatible with USB3.2 Gen 1
- Fully reversible for both plug and receptacle
- Intensity: 5A max
- Voltage: 20V max
- Dielectric: Withstanding voltage: 100 VAC
- Maximum length transmission: Up to 1 m (only for cordset versions). Amplifiers to come, please consult us.

Environmental protection:
- RoHS compliant

Receptacle back terminations

Cordset with USB Type-C male plug | USB3C male termination | USB Type-C with PCB: PC tails contacts

Markets & Applications

- C5ISR, Battlefield Communication
- Ground Vehicles
- Naval

Applications:
- Displays, Consoles, Visions systems, Situation awareness
Plug

Plug without cordset – Shell type 6

Part number type: **USB3CFTV 6 X**

**Note:** USB3 Type-C cordset can be inserted in any direction. Reversibility is managed on Receptacle side also.

Receptacles

Square flange receptacle – Shell type 2 - 4 mounting holes - Male USB termination

Part number type: **USB3CFTV 2 2 X**

**X:** see the How to order to complete your part number
USB3CFTV

Receptacles

Jam nut receptacle – Shell type 7 - Male USB termination - Hexagonal nut mounting

Part number type: **USBC3F TV 7 2 X**

Reduced flange receptacle F312 – Jam nut shell type 7 - USB male termination - Castle nut mounting

Part number type: **USB3CFTV 7 2 X F312**
Receptacles

Square flange receptacle – Shell type 2 - 4 mounting holes - Cordset with USB male plug

Part number type: **USB3CFTV 2 X XXX**

![Diagram of Square Flange Receptacle](image1)

Jam nut receptacle – Shell type 7 - Cordset with USBC male plug - Hexagonal nut mounting

Part number type: **USB3CFTV 7 X XXX**

![Diagram of Jam Nut Receptacle](image2)

X: see the How to order to complete your part number

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**USB3CFTV**

Due to technical progress, all information provided is subject to change without prior notice

Available in PDM

www.amphenol-socapex.com

Designed by Amphenol Socapex
**USB3CFTV**

Receptacles

**Reduced flange receptacle F312** – Jam nut shell type 7 - Cordset with USB male plug - Hexagonal nut mounting

Part number type: **USB3CFTV 7 X XXX F312**

X: see the How to order to complete your part number

**Stand-off Square flange receptacle F459** – 4 mounting holes - Shell type 2 with double flange for PCB mounting

Part number type: **USB3CFTV 2 X F459**

X: see the How to order to complete your part number

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- B.P. 29 74311   THYEZ CEDEX

**Add missing specifications on the drawing if necessary (specific labellings, tolerances,…)**

**CUSTOMER**: ____________________________

**PROGRAM**: ____________________________

**APPROVAL FOR MANUFACTURING**: ____________________________

**SIGNATURE**: ____________________________

**DATE**: 11/06/21

**NAME**: G. TUPIN

**SCALE**: 2,8  **REV**: B  **PAGE**: 1/2

**DIMENSIONS**

DRAWN BY:  S. FALCOZ  UPDATED BY: S. FALCOZ  LAST APPROVED BY:  M. RINSANT

**AVAILABLE IN PDM**

**DATA ARE**

**DRAWING DATE**:

**APPROVAL FOR MANUFACTURING**

**SIGNATURE**:

**DATE**: 24/08/22

**NAME**: S. FALCOZ

**SCALE**: 3,0  **REV**: A  **PAGE**: 1/2

**DIMENSIONS**

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**AVAILABLE IN PDM**

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**SIGNATURE**:

**DATE**: 191-PLC-1171-00  11/06/21

**NAME**: G. TUPIN

**SCALE**: 2,8  **REV**: C  **PAGE**: 1/1

**DIMENSIONS**

DRAWN BY:  S. FALCOZ  UPDATED BY: S. FALCOZ  LAST APPROVED BY:  M. RINSANT

**AVAILABLE IN PDM**

**DATA ARE**

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**SIGNATURE**:

**DATE**: 191-PLC-1171-00  11/06/21
Receptacles

Stand-off Jam nut receptacle – Hexagonal nut mounting - Shell type 7 with double flange for PCB mounting

Part number type: **USB3CFTV 7 X F459**

X: see the How to order to complete your part number

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Stand-off Reduced flange receptacle F059 – Jam nut Shell type 7 - Castle nut mounting for PCB mounting

Part number type: **USB3CFTV 7 X F059**

X: see the How to order to complete your part number
This protective cap provides you with a permanent sealing for plugs and receptacles.

**Plug caps**

| Part number: USB3CFTVC6XX |

**Receptacle caps**

| Part number: USB3CFTVC2XX, USB3CFTVC7XX, USBC3CFTVC7XXF057 |

**Attachment type**

- Small ring for square flange receptacle
- Tie wrap for plug cap
- Large ring for jam nut receptacle
- Ring for reduced flange jam nut receptacle

**Rope material**

- Metallic chain
- Stainless steel rope
- Nylon rope

<table>
<thead>
<tr>
<th>Cap type</th>
<th>Metallic chain length (mm)</th>
<th>Nylon cord length (mm)</th>
<th>Stainless steel rope length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptacle caps</td>
<td>127 (+13,-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plug caps</td>
<td>160±5</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>A Thread</th>
<th>ØB Max</th>
<th>ØN Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptacle caps</td>
<td>11</td>
<td>Class 2B-0.1P-0.3L-TS</td>
<td>22.6 mm [0.89 inch]</td>
<td></td>
</tr>
<tr>
<td>Plug caps</td>
<td>11</td>
<td>Class 2A-0.1P-0.3L-TS</td>
<td>20.5 mm [0.81 inch]</td>
<td></td>
</tr>
</tbody>
</table>
Other accessories

Cybersecurity solutions

Amphenol socapex has developed a dedicated solution to prevent unauthorized access to critical interconnections. Caplocks & Pluglocks in composite material, as well as Metal CapLock versions are designed to meet this need.

Suitable part numbers for your USB3 type C connectors:

<table>
<thead>
<tr>
<th>CapLock</th>
<th>PlugLock</th>
<th>Metal CapLock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part number:</td>
<td>Part number:</td>
<td>Part number:</td>
</tr>
<tr>
<td>CapLock 11 TX</td>
<td>PlugLock 11 TX</td>
<td>MCapLock X X 11</td>
</tr>
<tr>
<td>CapLock 11 WR</td>
<td>PlugLock 11 WR</td>
<td></td>
</tr>
</tbody>
</table>

TX : Torx Safety screw
WR : Cable seal, metal wire to cut to unlock

Caplock and Pluglock datasheet

Scan & Discover!
## How to order - Connector

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USB3CFTV</td>
<td>Plug</td>
<td></td>
<td>G</td>
<td>100</td>
<td>F459</td>
</tr>
<tr>
<td></td>
<td>Square flange receptacle</td>
<td></td>
<td></td>
<td></td>
<td>F312</td>
</tr>
<tr>
<td></td>
<td>Jam nut receptacle</td>
<td></td>
<td></td>
<td></td>
<td>F311</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Male USB type-C termination</td>
<td></td>
<td>F059</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blank</td>
<td>Cordset or PC tail contacts</td>
<td></td>
<td>F058</td>
</tr>
<tr>
<td>4. Material and platings</td>
<td>Shell material</td>
<td>Shell plating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Aluminum</td>
<td>Olive drab cadmium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Nickel</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZN</td>
<td>Black zinc nickel</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TZ</td>
<td>Tin Zinc</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BZ</td>
<td>Bronze</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Stainless steel</td>
<td>Passivated</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

✓: RoHS compliant

### Assembly video

Scan & Discover !

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<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB3CFTV6ZN</td>
<td>USB3CFTV serie, plug, aluminium shell with black zinc nickel plating</td>
</tr>
<tr>
<td>USB3CFTV7ZBF312</td>
<td>USB3CFTV serie, jam nut receptacle with reduced flange, male USB type-C termination, bronze shell</td>
</tr>
<tr>
<td>USB3CFTV2G100</td>
<td>USB3CFTV serie, square flange receptacle, aluminium shell with olive drab cadmium plating, 1-meter cordset with USB-C male plug</td>
</tr>
<tr>
<td>USB3CFTV7NF059</td>
<td>USB3CFTV serie, jam nut receptacle, aluminium shell with nickel plating, stand-off reduced flange receptacle for PCB.</td>
</tr>
</tbody>
</table>
# How to order - Accessories

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USB3CFTVC</td>
<td>Plug</td>
<td>Blank</td>
<td>N</td>
<td>Blank</td>
</tr>
<tr>
<td></td>
<td>Square flange receptacle</td>
<td>Nylon cord</td>
<td>G</td>
<td>Standard cap</td>
</tr>
<tr>
<td></td>
<td>Jam nut receptacle</td>
<td>M</td>
<td>ZN</td>
<td>Cap for reduced flange receptacle (F312, F059)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Series**
  - USB3CFTVC: USBFTV standard protective cap

- **Connector type**
  - 6: Plug
  - 2: Square flange receptacle
  - 7: Jam nut receptacle

- **Rope type**
  - Blank
  - Nylon cord
  - M: Metallic chain
  - MR: Stainless Steel rope - Transparent teflon jacket
  - BMR: Stainless Steel rope - Black teflon jacket for ZN finish

- **Shells material and finish**
  - N: Nickel plating
  - G: Olive drab cadmium
  - ZN: Black zinc nickel plating

- **Deviation**
  - Blank
  - F057

**Examples:**

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB3CFTVC7MZNF057</td>
<td>USB3CFTVC protective cap for reduced flange receptacle, metallic chain, black zinc nickel plating</td>
</tr>
<tr>
<td>USB3CFTVC2MRN</td>
<td>USB3CFTVC protective cap for square flange receptacle, stainless steel rope with teflon jacket, nickel plating</td>
</tr>
<tr>
<td>USB3CFTVC6G</td>
<td>USB3CFTVC protective cap for plug, nylon cord, olive drab cadmium plating</td>
</tr>
</tbody>
</table>

**: RoHS compliant**