## MUSB Rugged USB

Product Specification S6046C Rev 1.0

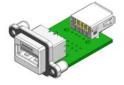
# Now you're connected!

## About Amphenol Commercial Products

Amphenol's commercial connector products are used in a variety of end user applications including networking, telecom, server & computer, storage & HDD, consumer electronics and entertainment, professional audio & Industrial & Military/Aerospace.

### **Related Products**

#### With matching USB



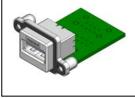
#### With Cable Header

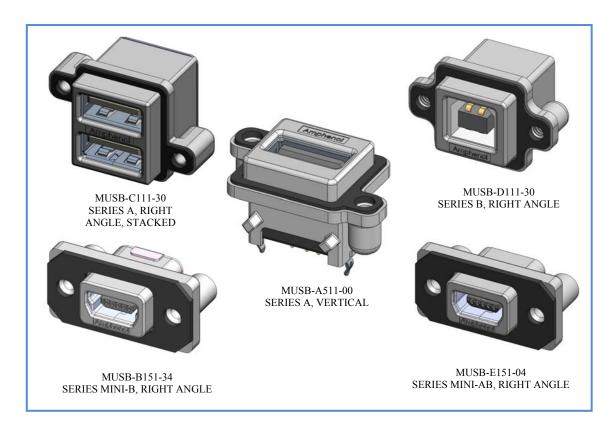


With Terminal Block



With PCB for wiring





#### Overview

This Product Specification defines the general use and performance parameters for Amphenol's MUSB series of connector.

Availability: Series A (single & stacked), series B, series Mini-B and series Mini-AB with right angle and vertical PCB tails. Right angle connectors mounted on a PCB with matching USB, cable headers or terminal blocks are available for all series. Dust covers for enhanced mating area protection are also available.

## **Usage**

These connectors meet Military shock & vibration levels and IP67 per IEC 60529 in mated and unmated conditions. The connector system is designed to provide a standard USB interface for enclosures exposed to harsh environments. Connectors mate with any standard USB 2.0 plug. Achieves data rates up to 480 Mb/s (USB 2.0).

## **Applications**

Intended for use in applications such as:

- Medical equipment
- Microwave transmitters
- GPS, positioning equipment
- Military vehicles, radios, computers
- Test equipment
- Mobile entertainment systems
- Traffic control & monitoring systems

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#### **Related Products**

#### MDB



9 POSITION CONNECTOR

### **MRJ**



MRJ-5480-01 SHOWN VERTICAL, PCB TAIL. 8 POSITION RJ45



MRJ-5380-01 SHOWN RIGHT ANGLE PCB TAIL 8 POSITION RJ45

## **Connector Electrical Characteristics**

Parameter Series A & B Series Mini-B & Mini-AB Current rating: 1.5A per contact 1.0A per contact

Contact resistance:  $30 \text{ m}\Omega \text{ max}$  $50 \text{ m}\Omega \text{ max}$  $1000 \, \mathrm{M}\Omega \, \mathrm{min}$ Insulation resistance:  $100 \text{ M}\Omega \text{ min}$ 

DWV: 500V AC @ sea level 100V AC @ sea level

## **Connector Mechanical Characteristics**

Thermal Shock: 5 cycles @ -40° to +125° C

Physical Shock: Per EIA364-27 Condition H (11ms 30G) Humidity: Per EIA364-31 Condition C, method III Vibration: Per EIA364-28 per Condition V, Letter A

Salt spray: Per EIA364-26, 250 Hrs

## **Process Characteristics**

Recommended soldering process: Hand or wave soldering peaked at 260°C for 8 seconds max. Recommended Torque for #4-40 or M3 Panel Mount Screws: 0.45 to 0.65 Nm (4 – 5.75 in-lbs). Recommended Torque for #2-56 or M2.5 Panel Mount Screws: 0.23 to 0.34 Nm (2 - 3 in-lbs).

Solder tails suitable for PCB thickness of 1.52mm (.062")

Mating Cycles: 1500 (Series A & B)

5000 (Series Mini-B & Mini-AB)

## Material Requirements

MUSB connectors are RoHS compliant.

Unless otherwise specified, the materials for each component shall be:

- Contacts: Phosphor Bronze with 30µ" (0.76µm) min Gold over 50µ" (1.27µm) min Nickel
- Housing: Engineering thermoplastic, UL94V-0 rated, Black. White for series B.
- Shell: Die cast Zinc alloy, Nickel plating

Temperature rise: Meets the requirement of 30° C  $\Delta$ T Operating temperature  $-40^{\circ}$  to  $+105^{\circ}$  C

### **Available Documents**

#### **Drawing Numbers:**

P-MUSB-A211-XX MUSB rugged Series A, Right Angle, on PCB with R/A cable header. Thread & Dust cover option

P-MUSB-A511-XX MUSB rugged Series A, Vertical PCB mount P-MUSB-B151-XX MUSB rugged Series Mini-B, right angle PCB tail

P-MUSB-CA11-XX MUSB rugged Series A, stacked, Right angle, on PCB. Thread & Dust cover options

P-MUSB-D411-3X MUSB rugged Series B, Right Angle, on PCB with terminal block

P-MUSB-E151-XX MUSB rugged Series Mini-AB, Right Angle PCB tail, Thread & Dust Cover options

Contact factory, authorized Amphenol representative or website www.amphenolcanada.com for additional configurations

#### Quality Test Reports

OTR9300377 Series Mini-B & Mini-AB

OTR9300378 Series A & B

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## Now you're connected!

	Product Numbering System	MUSB	- A	1	1	1 -	3	0	
MUSB	Connector series designation - Rugged USB	]							
-	Style A - Receptacle series A, single B - Receptacle series Mini-B, single C - Receptacle series A over series A, stacked D - Receptacle series B, single E - Receptacle series Mini-AB, single								
	Termination  1 - Right angle PCB tail  2 - Right angle PCB tail, on PCB with right angle cable header, note 1  3 - Right angle PCB tail, on PCB with matching USB termination, note 2  4 - Right angle PCB tail, on PCB with terminal block(s), note 3  5 - Vertical PCB tail  8 - Right angle PCB tail, on PCB with vertical cable header, note 4  A - Right angle PCB tail, on PCB for hand wiring  E - Right angle PCB, on PCB, with vertical USB termination, note 4								
_	Number of Contacts  1 - Standard 4 per port (use for styles A, C & D)  5 - Standard 5 per port (use for styles B & E)				_				
	Colour 1 - Black - Standard (use this code for White style D connectors as well)					_			
	Options  0 - No rear shield; shell with Unified National thread, note 5 & 6  3 - With rear shield; shell with Unified National thread, note 5 & 6  M - With rear shield; shell with Metric thread, note 5 & 7  N - No rear shield, shell with Metric thread, notes 5 & 7						I		
	Dust Cover Options  0 - Standard (no dust cover)  1 - With grey color dust cover (supplied bulk packed)  4 - Standard (no dust cover), note 8  5 - With black color dust cover (supplied bulk packed)							J	
	Unique Special Code  No Digit – Standard part defined by previous 10 digits  1 to 9 - Unique special feature. Note 9								I

## Notes

- 1) Design of right angle cable header varies depending upon the style. Refer to drawing for details.
- 2) Matching USB is the same USB series as the rugged connector
- 3) Design of terminal blocks varies depending upon the style. Refer to drawing for details.
- 4) Vertical headers & vertical matching USB's may not be readily available for all connector styles.
- 5) Rear shield required for styles A, C & D with right angle PCB tails. Rear shield optional for styles B & E with right angle PCB tails. No rear shield for any vertical PCB tail.
- 6) Use #4-40 UNC for styles A, C & D and #2-56 UNC for styles B & E
- 7) Metric thread use M3 for styles A, C, & D and M2.5 for styles B & E
- 8) Dust cover option code 4 is identical to code 0 and may be used for styles B & E only.
- 9) Many unique features are readily available to suit customer requirements. Consult with Amphenol Canada for details.

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