AirBorn
High-Reliability Interconnect Solutions

Signal Integrity Interconnects
# Table of Contents

## MicroQUAD
- MMHS – Cable I/O (Male) ................................................................. 4
- MMHS – Cable I/O (Female) ............................................................. 5
- MJHS – Jumper Cable ................................................................. 6
- MKHS – Right Angle Surface Board-Mount (Male) ...................... 7
- MKHS – Right Angle Surface Board-Mount (Female) .................. 8
- MLHS – Vertical Surface Board-Mount w/Fixed Hardware (Male) ... 9
- MLHS – Vertical Surface Board-Mount w/Fixed Hardware (Female) 10
- MLHS – Vertical Surface Board-Mount w/Turning Hardware (Male) 11
- MLHS – Vertical Surface Board-Mount w/Turning Hardware (Female) 12

## MicroSI
- MMSI – Cable I/O (Male) ................................................................. 17
- MMSI – Cable I/O (Female) ............................................................. 20
- MJSI – Cable Assembly ................................................................. 23
- MKSI – Right Angle (Male) ............................................................. 27
- MKSI – Right Angle (Female) ......................................................... 35
- MLSI – Vertical (Male) ................................................................. 43
- MLSI – Vertical (Female) ............................................................... 51

## RC
- Stackable, Press-Fit, Compliant Pin/Socket ........................................ 65

## RCII
- Stackable, Press-Fit, Compliant Pin/Socket ........................................ 81

## RZ
- Vertical Compression (Z-axis), Open-Pin Field .................................. 92

## VerSI
- VSM – Vertical (Male) ................................................................. 97
- VSF – Vertical (Female) ............................................................... 98
- VRM – Vertical Rugged (Male) ..................................................... 99
- VRF – Vertical Rugged ............................................................... 100
- VSRAM – Right Angle (Male) ...................................................... 101
- VRRAM – Rugged Right Angle (Male) .......................................... 102
- VSRAF – Right Angle (Female) .................................................... 103
- VRRAF – Rugged Right Angle (Female) ........................................ 104
- VRD – Differential Pair Twinax Cable Assembly ........................... 105
- VRW – Discrete Wire Cable Assembly with Internal Solder Connection 106
- VSX – Flexible Circuit Jumper Assembly ..................................... 109
AirBorn introduces a Micro-D, multi-gigabit, high-speed connector designed to meet the performance requirements of MIL-DTL-83513, where applicable. This rugged connector system is designed to handle LVDS serial bus signals like Ethernet, serial rapid IO, etc. This versatile product has a range from one to ten high-speed modules and up to fifty signal contacts making it ideal for most high-reliability applications.
MMHS – Cable I/O (Male)

MMHS cable connectors are used in cable applications where both signal and quadrax modules are desired. These connectors come with a variety of wiring and hardware options and all cable connectors are available in custom lengths.

**Notes**
- Option not RoHS-compliant.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
- Captivated hardware is factory-installed and non-removable.
- Refer to “Hardware Keying Options” on page 15.

**Materials and Finishes**
- Socket Contact: Brass
- Pin Contacts: BeCu alloy strip
- Contact Finish: Gold plate, 50 µ" minimum
- Shells: Aluminum alloy 6061-T6
- Shell Finishes: Corrosion-resistant steel
- Molded Insulators: Glass-filled liquid crystal polymer (LCP)
- Embedment: Frey Eng. Co. compound CF3003-80 & L-II-49
- Hardware: Corrosion-resistant steel
- Interfacial Seal Gaskets: Fluorosilicone
- EMI Gaskets: Corrosion-resistant steel

**Performance**
- Contact Rating: 3 amperes maximum
- Operating Temperature: -55° C to 125° C
- Maximum Working Voltage: 600V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 6.0 ounces maximum/contact
- Contact Separating Force: 0.5 ounces minimum/contact
- Mating and Unmating Force: 10 ounces maximum/contact

**Sample Part Number Format: MMHS-02L4-11D-018-5000**

**Dimensions**

**SIGNAL INTEGRITY PERFORMANCE (Connectors Only)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Impedance</td>
<td>100 ohm +/- 10</td>
</tr>
<tr>
<td>2</td>
<td>Diff. Insertion Loss</td>
<td>4.0 GHz @ -3 dB</td>
</tr>
<tr>
<td>3</td>
<td>Diff. Return Loss</td>
<td>1.8 GHz @ -20 dB</td>
</tr>
<tr>
<td>4</td>
<td>Intra-Pair</td>
<td>15 ps</td>
</tr>
</tbody>
</table>

**WIRE TYPE & GAUGE, QUADRAX**

WIRE LENGTH

XXX – Wire length in inches (minimum 3")
Example: 018 = 18"

**WIRE TYPE & GAUGE, SIGNALS**

0 – No signal contacts
X – See Wire Codes on page 14

**WIRE CODES**

- 000 – No hardware
- 010 – Two fixed jackscrews
- 018 – 18" Wire length
- 020 – 20" Wire length
- 024 – 24" Wire length
- 030 – 30" Wire length
- 036 – 36" Wire length
- 040 – 40" Wire length
- 048 – 48" Wire length
- 055 – 55" Wire length
- 060 – 60" Wire length
- 070 – 70" Wire length
- 080 – 80" Wire length
- 090 – 90" Wire length
- 100 – 100" Wire length
- 120 – 120" Wire length

**Contact Finish: Note:** AirBorn can manufacture special configurations to your exact specifications.

**Wire Lengths**

- Maximum Working Voltage: 600V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 6.0 ounces maximum/contact
- Contact Separating Force: 0.5 ounces minimum/contact
- Mating and Unmating Force: 10 ounces maximum/contact

**Performance**

- Contact Rating: 3 amperes maximum
- Operating Temperature: -55° C to 125° C
- Maximum Working Voltage: 600V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 6.0 ounces maximum/contact
- Contact Separating Force: 0.5 ounces minimum/contact
- Mating and Unmating Force: 10 ounces maximum/contact
MMHS – Cable I/O (Female)

MMHS cable connectors are used in cable applications where both signal and quadrax modules are desired. These connectors come with a variety of wiring and hardware options and all cable connectors are available in custom lengths.

**HIGH-SPEED MODULES**

- **Series**
  - Cable I/O (Female)
- **Modules**
  - 01 – 1 Module
  - 02 – 2 Modules
  - 03 – 3 Modules
  - 04 – 4 Modules
  - 05 – 5 Modules (max. sig. 40)
  - 06 – 6 Modules (max. sig. 30)
  - 07 – 7 Modules (max. sig. 20)
  - 08 – 8 Modules (max. sig. 10)
  - 09 – 9 Modules (max. sig. 10)
  - 0A – 10 Modules (no signals)

**SIGNAL CONTACTS**

- **L0** – Left-side key – No signal contacts
- **L1** – Left-side key – 10 signal contacts
- **L2** – Left-side key – 20 signal contacts
- **L3** – Left-side key – 30 signal contacts
- **L4** – Left-side key – 40 signal contacts
- **L5** – Left-side key – 50 signal contacts
- **R0** – Right-side key – No signal contacts
- **R1** – Right-side key – 10 signal contacts
- **R2** – Right-side key – 20 signal contacts
- **R3** – Right-side key – 30 signal contacts
- **R4** – Right-side key – 40 signal contacts
- **R5** – Right-side key – 50 signal contacts

**MATERIALS and FINISHES**

- **Socket Contact:** Brass
- **Pin Contacts:** BeCu alloy strip
- **Contact Finish:** Gold plate, 50 µm minimum
- **Shells:** Aluminum alloy 6061-T6
- **Shell Finishes:** Corrosion-resistant steel
- **Molded Insulators:** Glass-filled liquid crystal polymer (LCP)
- **EMI Gaskets:** Frey Eng. Co. compound CF3003-80 & L-II-49
- **Interfacial Seal Gaskets:** Fluorosilicone
- **Embedment:** Frey Eng. Co. compound CF3003-80 & L-II-49

**PERFORMANCE**

- **Contact Rating:** 3 amperes maximum
- **Operating Temperature:** -65° C to 125° C
- **Maximum Working Voltage:** 600V, RMS, 60Hz
- **Insulation Resistance:** 5,000 megohms minimum @ 500 VDC
- **Durability:** 500 connector mating cycles
- **Contact Engaging Force:** 6.0 ounces maximum/contact
- **Contact Separating Force:** 0.5 ounces minimum/contact
- **Mating and Unmating Force:** 10 ounces maximum/contact

**Sample Part Number Format:** MMHS-01R1-410-006-1810

**NOTES**

1. All high-speed receptacles have fluoropolymer interfacial seals.
2. Option not RoHS-compliant.
3. Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
4. Captivated hardware is factory-installed and non-removable.
5. Refer to “Hardware Keying Options” on page 15.

**High-Reliability Contact**

MIL-DTL-83513

**Contact Customer Service**

CALL 512-863-5585 x6400
**MJHS – Jumper Cable**

MJHS rugged metal cable assemblies are used in jumper applications where both signal and quadrax modules are desired. These connectors come with a variety of wiring and hardware options and all cable connectors are available in custom lengths.

**SIGNAL CONTACTS**

L0 – Left-side key – No signal contacts  
L1 – Left-side key – 10 signal contacts  
L2 – Left-side key – 20 signal contacts  
L3 – Left-side key – 30 signal contacts  
L4 – Left-side key – 40 signal contacts  
L5 – Left-side key – 50 signal contacts  
R0 – Right-side key – No signal contacts  
R1 – Right-side key – 10 signal contacts  
R2 – Right-side key – 20 signal contacts  
R3 – Right-side key – 30 signal contacts  
R4 – Right-side key – 40 signal contacts  
R5 – Right-side key – 50 signal contacts

**BODY STYLE**

1 – Male-to-Male  
2 – Male-to-Female  
3 – Male-to-Female, ground fingers  
4 – Female-to-Female  
5 – Female-to-Female (both with ground fingers)

**WIRE TYPE & GAUGE, QUADRAX**

X – See Quadrax Wire Codes on page 13

**WIRE TYPE & GAUGE, SIGNALS**

0 – No signal contacts  
X – See Wire Codes on page 14

**WIRE LENGTH**

XXX – Wire length in inches  
(minimum 3”)  
Example: 018 = 18"

**BODY PLATING (LCP INSULATORS)**

1 – Electroless nickel-plated aluminum shell  
2 – Electroless nickel-plated aluminum shell  
3 – Electrodeposited cadmium-plated aluminum shell  
5 – Gold-plated aluminum shell  
6 – Gold-plated aluminum shell

**HARDWARE**

000 – No hardware  
610 – Fixed jacknuts, captivated** (both)  
810 – Turning jackscrews, captivated** (both)  
860 – Fixed jacknuts, captivated (female) & turning jackscrews (male)  
870 – Fixed jacknuts, captivated (male) & turning jackscrews (female)  
NXX – Keying jackscrews (male)**  
JXX – Keying jackscrews (both)**  
AXX – Keying jacknuts (female) & keying jackscrews (male)**  
BXX – Keying jacknuts (male) & keying jackscrews (female)**

**NOTES**

1. All high-speed receptacles have fluoropolymer interfacial seals.  
2. Option not RoHS-compliant.  
3. Captivated hardware is factory-installed and non-removable.  
4. Refer to “Hardware Keying Options” on page 15.

**MATERIALS and FINISHES**

Socket Contact:  
Brass  
Pin Contacts:  
BeCu alloy strip  
Contact Finish:  
Gold plate, 50 µ” minimum  
Shells:  
Aluminum alloy 6061-T6  
Shell Finishes:  
Electroless nickel, electrodeposited cadmium, or gold-plated molded insulators:  
Glass-filled liquid crystal polymer (LCP)  
Embedment:  
Frey Eng. Co. compound CF3003-80 & L-II-49  
Hardware:  
Corrosion-resistant steel  
Interfacial Seal Gaskets:  
Fluorosilicone  
EMI Gaskets:  
Corrosion-resistant steel  

**PERFORMANCE**

Contact Rating:  
3 amperes maximum  
Operating Temperature:  
-65°C to 125°C  
Maximum Working Voltage:  
600V, RMS, 60Hz  
Insulation Resistance:  
5,000 megohms minimum @ 500 VDC  
Durability:  
500 connector mating cycles  
Contact Engaging Force:  
6.0 ounces maximum/contact  
Contact Separating Force:  
0.5 ounces minimum/contact  
Mating and Unmating Force:  
10 ounces maximum/contact

**Sample Part Number Format:** MJHS-04R1-33D-022-5N41

**Dimensions**

**Contact Us**

AirBorn
(512) 863-5585
www.airborn.com
6400
6/16
MKHS – Right Angle Surface Board-Mount (Male)

MKHS are rugged metal connectors used in applications where a right angle orientation and a surface board-mount termination style are desired.

Notes:
- Option not RoHS-compliant.
- Captivated hardware is factory-installed and non-removable.
- Refer to Hardware Keying Options on page 15.

Sample Part Number Format: MKHS-06L3-100-175-3J45

High-Reliability Contact
MIL-DTL-38513

Materials and Finishes

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socket Contact</td>
<td>Brass</td>
</tr>
<tr>
<td>Pin Contacts</td>
<td>BeCu alloy strip</td>
</tr>
<tr>
<td>Contact Finish</td>
<td>Gold plate, 50 µm minimum</td>
</tr>
<tr>
<td>Shells</td>
<td>Aluminum alloy 6061-T6</td>
</tr>
<tr>
<td>Shell Finishes</td>
<td>Electroless nickel, electrodeposited cadmium, or gold-plated</td>
</tr>
<tr>
<td>Molded Insulators</td>
<td>Glass-filled liquid crystal polymer (LCP)</td>
</tr>
<tr>
<td>Embedment</td>
<td>Frey Eng. Co. compound CF3003-80 &amp; LLI-49</td>
</tr>
<tr>
<td>Hardware</td>
<td>Corrosion-resistant steel</td>
</tr>
<tr>
<td>Interfacial Seal Gaskets</td>
<td>Fluorosilicone</td>
</tr>
<tr>
<td>EMI Gaskets</td>
<td>Corrosion-resistant steel</td>
</tr>
</tbody>
</table>

Performance

- Contact Rating: 3 amperes maximum
- Operating Temperature: -65°C to 125°C
- Maximum Working Voltage: 600V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 6.0 ounces maximum/contact
- Contact Separating Force: 0.5 ounces minimum/contact
- Mating and Unmating Force: 10 ounces maximum/contact

Contact Customer Service
CALL 512-863-5585 x6400

www.airborn.com
(512) 863-5585

MKHSM-PNB-1D
MKHS – Right Angle Surface Board-Mount (Female)

MKHS are rugged metal connectors used in applications where a right angle orientation and a surface board-mount termination style are desired.

1. All high-speed receptacles have fluoropolymer interfacial seals.

**Option not RoHS-compliant.

* Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.

** Captivated hardware is factory-installed and non-removable.

*** Refer to Hardware Keying Options on page 15.

### SIGNAL INTEGRITY PERFORMANCE (Connectors Only)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Impedance, filtered to 70 ps (20-80%)</td>
<td>100 ohm +/- 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Insertion Loss</td>
<td>4.0 GHz @ -3 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Return Loss</td>
<td>1.8 GHz @ -20 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Intra-Pair</td>
<td>15 ps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MATERIALS and FINISHES

- **Socket Contact:** Brass Pin Contacts: BeCu alloy strip
- **Contact Finish:** Gold plate, 50 µm minimum
- **Shell:** Aluminum alloy 6061-T6
- **Shell Finishes:** Electroless nickel, electrodeposited cadmium, or gold-plated
- **Molded Insulators:** Glass-filled liquid crystal polymer (LCP)
- **Embedment:** Frey Eng. Co. compound CF3003-80 & L-II-49
- **Body Finish:** Electroless nickel-plated aluminum shell
- **Body Plating (LCP Insulators):** 3 – Electrodeposited cadmium-plated aluminum shell
- **Body Plating:** 6 – Gold-plated aluminum shell
- **Emulsion:** Frey Eng. Co. compound CF3003-80 & L-II-49
- **Contact Finish:** Corrosion-resistant steel
- **EMI Gaskets:** Fluorosilicone
- **Shell Finishes:** Corrosion-resistant steel

### PERFORMANCE

- **Contact Rating:** 3 amperes maximum
- **Operating Temperature:** -65°C to 125°C
- **Maximum Working Voltage:** 600V RMS, 60Hz
- **Insulation Resistance:** 5,000 megohms minimum @ 500 VDC
- **Durability:** 500 connector mating cycles
- **Contact Engaging Force:** 6.0 ounces maximum/contact
- **Contact Separating Force:** 0.5 ounces minimum/contact
- **Mating and Unmating Force:** 10 ounces maximum/contact

www.airborn.com
(512) 863-5585

Sample Part Number Format: MKHS-04R1-400-275-2620

**NOTES**

- All high-speed receptacles have fluoropolymer interfacial seals.
- Option not RoHS-compliant.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
- Captivated hardware is factory-installed and non-removable.
- Refer to Hardware Keying Options on page 15.

**PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.**
MLHS – Vertical Surface Board-Mount w/ Fixed Hardware (Male)

MLHS are rugged metal connectors used in applications where a vertical orientation and a surface board-mount termination style are desired. These connectors have fixed hardware.

### Materials and Finishes

- **Contact:***
  - Brass
  - BeCu alloy strip
- **Contact Finish:**
  - Gold plate, 50 µm minimum
- **Shells:**
  - Aluminum alloy 6061-T6
- **Shell Finish:**
  - Electroless nickel, electroplated cadmium, or gold-plated
- **Molded Insulators:**
  - Glass-filled liquid crystal polymer (LCP)
- **Embedment:**
  - Frey Eng. Co. compound CF3003-80 & Li-49
- **Hardware:**
  - Corrosion-resistant steel
- **Interfacial Seal Gaskets:**
  - Fluorosilicone
- **EMI Gaskets:**
  - Corrosion-resistant steel

**NOTE:** AirBorn can manufacture special configurations to your exact specifications.

### Performance

- **Contact Rating:** 3 amperes maximum
- **Operating Temperature:** -55°C to 125°C
- **Maximum Working Voltage:** 600V RMS, 60Hz
- **Insulation Resistance:** 5,000 megohms minimum @ 500 VDC
- **Durability:** 500 connector mating cycles
- **Contact Engaging Force:** 6.0 ounces maximum/contact
- **Contact Separating Force:** 0.5 ounces minimum/contact
- **Mating and Unmating Force:** 10 ounces maximum/contact

### Notes

- Option not RoHS-compliant.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
- Captivated hardware is factory-installed and non-removable.
- Refer to Hardware Keying Options on page 15.

### Sample Part Number Format: MLHS-04L2-100-A77-3N35

- **SERIES**
  - Vertical Surface Mount (Male)
- **HIGH-SPEED MODULES**
  - 01 – 1 Module
  - 02 – 2 Modules
  - 03 – 3 Modules
  - 04 – 4 Modules
  - 05 – 5 Modules (max. sig. 40)
  - 06 – 6 Modules (max. sig. 30)
  - 07 – 7 Modules (max. sig. 20)
  - 08 – 8 Modules (max. sig. 10)
  - 09 – 9 Modules (max. sig. 10)
  - 0A – 10 Modules (no signals)

### SIGNAL CONTACTS

- L0 – Left-side key – No signal contacts
- L1 – Left-side key – 10 signal contacts
- L2 – Left-side key – 20 signal contacts
- L3 – Left-side key – 30 signal contacts
- L4 – Left-side key – 40 signal contacts
- L5 – Left-side key – 50 signal contacts
- R0 – Right-side key – No signal contacts
- R1 – Right-side key – 10 signal contacts
- R2 – Right-side key – 20 signal contacts
- R3 – Right-side key – 30 signal contacts
- R4 – Right-side key – 40 signal contacts
- R5 – Right-side key – 50 signal contacts

### TERMINATION PLATING

- 5 – 50 µm Gold contact, Sn/Pb alloy termination
- 7 – 50 µm Gold contact, SAC305-plated termination

### BODY PLATING (LCP INSULATORS)

- 2 – Electroless nickel-plated aluminum shell
- 3 – Electroplated cadmium-plated aluminum shell
- 6 – Gold-plated aluminum shell

### BODY STYLE

- 100 – Plug

### HIGH-RELIABILITY CONTACT

- MIL-17L-83513

### SIGNAL INTEGRITY PERFORMANCE (Connectors Only)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Impedance, filtered to 70 ps (20-80%)</td>
</tr>
<tr>
<td>2</td>
<td>Diff. Insertion Loss</td>
</tr>
<tr>
<td>3</td>
<td>Diff. Return Loss</td>
</tr>
<tr>
<td>4</td>
<td>Intra-Pair</td>
</tr>
</tbody>
</table>

**NOTE:** Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.
** Captivated hardware is factory-installed and non-removable.

Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.

SIGNAL CONTACTS

<table>
<thead>
<tr>
<th>Modules</th>
<th>SIG 1D</th>
<th>SIG 20</th>
<th>SIG 35</th>
<th>SIG 40</th>
<th>SIG 50</th>
<th>SIG xx</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.200</td>
<td>0.321</td>
<td>0.401</td>
<td>0.470</td>
<td>0.571</td>
<td>0.687</td>
</tr>
<tr>
<td>02</td>
<td>0.321</td>
<td>0.401</td>
<td>0.470</td>
<td>0.571</td>
<td>0.687</td>
<td>0.836</td>
</tr>
<tr>
<td>03</td>
<td>0.401</td>
<td>0.470</td>
<td>0.571</td>
<td>0.687</td>
<td>0.836</td>
<td>0.996</td>
</tr>
<tr>
<td>04</td>
<td>0.470</td>
<td>0.571</td>
<td>0.687</td>
<td>0.836</td>
<td>0.996</td>
<td>0.996</td>
</tr>
<tr>
<td>05</td>
<td>0.571</td>
<td>0.687</td>
<td>0.836</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
</tr>
<tr>
<td>06</td>
<td>0.687</td>
<td>0.836</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
</tr>
<tr>
<td>07</td>
<td>0.836</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
</tr>
<tr>
<td>08</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
<td>0.996</td>
</tr>
</tbody>
</table>

NOTES

- Option not RoHS-compliant.
- All high-speed receptacles have fluoropolymer interfacial seals.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
- Captivated hardware is factory-installed and non-removable.
- Refer to Hardware Keying Options on page 15.

Sample Part Number Format: MLHS-03R2-400-B77-3620

High-Reliability Contact

MIL-DTL-83513

MATERIALS and FINISHES

- Socket Contact: Brass
- Pin Contacts: BeCu alloy strip
- Contact Finish: Gold plate, 50 µ” minimum
- Shells: Aluminum alloy 6061-T6
- Shell Finishes: Electroless nickel, electroplated cadmium, or Gold-plated
- Molded Insulators: Glass-filled liquid crystal polymer (LCP)
- Embedment: Frey Eng. Co. compound CF3003-60 & L-III-49
- Hardware: Corrosion-resistant steel
- Interfacial Seal Gaskets: Fluorosilicone
- EMI Gaskets: Corrosion-resistant steel

PERFORMANCE

- Contact Rating: 3 amperes maximum
- Operating Temperature: -65°C to 125°C
- Maximum Working Voltage: 600V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 6.0 ounces maximum/contact
- Contact Separating Force: 0.5 ounces maximum/contact
- Mating and Unmating Force: 10 ounces maximum/contact
MLHS – Vertical Surface Board-Mount w/Turning Hardware (Male)

MLHS are rugged metal connectors used in applications where a vertical orientation and a surface board-mount termination style are desired. These connectors have captive turning hardware.

**NOTES**
- Option not RoHS-compliant.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
- Captivated hardware is factory-installed and non-removable.
- Refer to Hardware Keying Options on page 15.

**MATERIALS and FINISHES**
- **Socket Contact:** BeCu alloy strip
- **Contact Finish:** Gold plate, 50 µm minimum
- **Shells:** Aluminum alloy 6061-T6
- **Shell Finishes:** Electroless nickel, electrodeposited cadmium, or gold-plated
- **Molded Insulators:** Glass-filled liquid crystal polymer (LCP)
- **Embedment:** Frey Eng. Co. compound CF3003-80 & L-II-49
- **Hardware:** Corrosion-resistant steel
- **Interfacial Seal Gaskets:** Fluorosilicone
- **EMI Gaskets:** Corrosion-resistant steel

**PERFORMANCE**
- **Contact Rating:** 3 amperes maximum
- **Operating Temperature:** -65°C to 125°C
- **Maximum Working Voltage:** 600V, RMS, 60Hz
- **Insulation Resistance:** 5,000 megohms minimum @ 500 VDC
- **Durability:** 500 connector mating cycles
- **Contact Engaging Force:** 6.0 ounces maximum/contact
- **Contact Separating Force:** 0.5 ounces minimum/contact
- **Mating and Unmating Force:** 10 ounces maximum/contact

**Sample Part Number Format: MLHS-05R2-300-775-2810**

**NOTE:** AirBorn can manufacture special configurations to your exact specifications.
MLHS – Vertical Surface Board-Mount w/Turning Hardware (Female)

MLHS are rugged metal connectors used in applications where a vertical orientation and a surface board-mount termination style are desired. These connectors have turning hardware.

- All high-speed receptacles have fluoropolymer interfacial seals.
- Option not RoHS-compliant

Sample Part Number Format: MLHS-03L3-800-477-2J21

- **NOTES**
  - Option not RoHS-compliant.
  - 1. All high-speed receptacles have fluoropolymer interfacial seals.
  - * Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. The key is the angled side of the interface.
  - ** Captivated hardware is factory-installed and non-removable.
  - *** Refer to Hardware Keying Options on page 15.

### SIGNAL CONTACTS
- **L0** – Left-side key – No signal contacts
- **L1** – Left-side key – 10 signal contacts
- **L2** – Left-side key – 20 signal contacts
- **L3** – Left-side key – 30 signal contacts
- **L4** – Left-side key – 40 signal contacts
- **L5** – Left-side key – 50 signal contacts
- **R0** – Right-side key – No signal contacts
- **R1** – Right-side key – 10 signal contacts
- **R2** – Right-side key – 20 signal contacts
- **R3** – Right-side key – 30 signal contacts
- **R4** – Right-side key – 40 signal contacts
- **R5** – Right-side key – 50 signal contacts

### MATERIALS and FINISHES
- Socket Contact: Brass
- Pin Contacts: BeCu alloy strip
- Contact Finish: Gold plate, 50 µ" minimum
- Shell: Aluminum alloy 6061-T6
- Shell Finishes: Electroless nickel, electroplated cadmium, or gold-plated
- Molded Insulators: Glass-filled liquid crystal polymer (LCP)
- Embedment: Frey Eng. Co. compound CF3003-80 & Li-Io
- Hardware: Corrosion-resistant steel
- Interfacial Seal Gaskets: Flurosilicone
- EMI Gaskets: Corrosion-resistant steel

### PERFORMANCE
- Contact Rating: 3 amperes maximum
- Operating Temperature: -65° C to 125° C
- Maximum Working Voltage: 600V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 50 ounces maximum/contact
- Contact Separating Force: 0.5 ounces minimum/contact
- Mating and Unmating Force: 10 ounces maximum/contact

### SIGNAL INTEGRITY PERFORMANCE (Connectors Only)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Impedance, filtered to 70 ps (20-80%)</td>
</tr>
<tr>
<td>2</td>
<td>Diff. Insertion Loss</td>
</tr>
<tr>
<td>3</td>
<td>Diff. Return Loss</td>
</tr>
<tr>
<td>4</td>
<td>Intra-Pair</td>
</tr>
</tbody>
</table>

www.airborn.com
(512) 863-5585

MLHSTF-PNB-1D
WIRE CODES

QUADRAX CABLE CONSTRUCTION

Conductors: Silver-plated copper alloy

Insulation: FEP

Cable: Planetary twist with filler in core

Binder: PTFE tape

Inner Shield: Aluminized mylar facing out

Outer Shield: Braided silver-plated copper (95% min. coverage)

Marker Tape: Polyimide tape

Jacket: Translucent FEP

Differential Pairs: Pair 1 - blue (position M1), orange (position M3) Pair 2 - green (position M2), red (position M4)

Temperature: -55°C to +125°C

Differential Impedance: 100 Ω ±10 Ω; 110 Ω ±6 Ω

Delay Skew within Pair: 4.0 ps/ft max.

QUADRAX WIRE CODES

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100 Ω 24 AWG</td>
</tr>
<tr>
<td>2</td>
<td>100 Ω 26 AWG</td>
</tr>
<tr>
<td>3</td>
<td>100 Ω 28 AWG</td>
</tr>
<tr>
<td>4</td>
<td>100 Ω 30 AWG</td>
</tr>
<tr>
<td>5</td>
<td>110 Ω 24 AWG</td>
</tr>
<tr>
<td>6</td>
<td>110 Ω 26 AWG</td>
</tr>
<tr>
<td>7</td>
<td>110 Ω 28 AWG</td>
</tr>
<tr>
<td>8</td>
<td>110 Ω 30 AWG</td>
</tr>
</tbody>
</table>

NOTES

1. Additional high-speed cable types are available as standard options (i.e., drain wire, TwinAx, shielded pairs, shielded pair quad, twisted pair quad, etc.). Contact AirBorn for construction specifications of alternate cable.

2. Additional wire types are available as standard options (i.e., twisted pair, shielded, braid, etc.).
### SIGNAL WIRE CODES

<table>
<thead>
<tr>
<th>Letter</th>
<th>Code Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SAE AS22759/11-24</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>B</td>
<td>SAE AS22759/11-24</td>
<td>Non-repeating colors per MIL-STD-681</td>
</tr>
<tr>
<td>C</td>
<td>SAE AS22759/11-24</td>
<td>White</td>
</tr>
<tr>
<td>D</td>
<td>SAE AS22759/11-26</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>E</td>
<td>SAE AS22759/11-26</td>
<td>Non-repeating colors per MIL-STD-681</td>
</tr>
<tr>
<td>F</td>
<td>SAE AS22759/11-26</td>
<td>White</td>
</tr>
<tr>
<td>G</td>
<td>SAE AS22759/11-28</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>H</td>
<td>SAE AS22759/11-28</td>
<td>White</td>
</tr>
<tr>
<td>J</td>
<td>SAE AS22759/33-24*</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>K</td>
<td>SAE AS22759/33-24*</td>
<td>White</td>
</tr>
<tr>
<td>L</td>
<td>SAE AS22759/33-26*</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>M</td>
<td>SAE AS22759/33-26*</td>
<td>White</td>
</tr>
<tr>
<td>N</td>
<td>SAE AS22759/33-28*</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>P</td>
<td>SAE AS22759/33-28*</td>
<td>White</td>
</tr>
<tr>
<td>Q</td>
<td>SAE AS22759/33-30*</td>
<td>Ten repeating colors per M83513</td>
</tr>
<tr>
<td>R</td>
<td>SAE AS2275933-30*</td>
<td>White</td>
</tr>
<tr>
<td>S</td>
<td>NEMA HP3-EXBEB</td>
<td>24 AWG non-repeating colors per MIL-STD-681</td>
</tr>
<tr>
<td>T</td>
<td>NEMA HP3-EXBEB</td>
<td>24 AWG white</td>
</tr>
<tr>
<td>U</td>
<td>NEMA HP3-EXBDB</td>
<td>26 AWG non-repeating colors per MIL-STD-681</td>
</tr>
<tr>
<td>V</td>
<td>NEMA HP3-EXBDB</td>
<td>26 AWG white</td>
</tr>
<tr>
<td>W</td>
<td>NEMA HP3-EXBCB</td>
<td>28 AWG non-repeating colors per MIL-STD-681</td>
</tr>
<tr>
<td>X</td>
<td>NEMA HP3-EXBCB</td>
<td>28 AWG white</td>
</tr>
<tr>
<td>Y</td>
<td>NEMA HP3-EXBBB</td>
<td>30 AWG non-repeating colors per M83513</td>
</tr>
<tr>
<td>Z</td>
<td>NEMA HP3-EXBBB</td>
<td>30 AWG white</td>
</tr>
</tbody>
</table>

### NOTES

* Corrosion has been experienced on connectors that are pre-wired with M22759/33 and stored in sealed environments. Exercise caution in packaging and storing when using this wire.

* Option is not RoHS-compliant
Select the appropriate two-digit number above and include as the last two digits of the hardware code in the part number. (Keying is factory-installed and non-removable.)

Example: MMHS-03L2-12D-197-2J11
MKHS-03R2-200-275-2N11
The AirBorn microSI product line is designed to meet requirements for high-speed/signal integrity applications while still delivering the reliability customers have come to expect from AirBorn. MicroSI delivers flexibility by design, offering vertical board-mount, right angle board-mount, and cable I/O configurations supporting 1X, 4X, and 8X 100 Ω and 85 Ω differential serial buses. Its balanced design limits skew within pairs. The MIL-DTL-83513 (Micro-D) qualified contact system and metal shells ensure ruggedness and durability.
MMSI – Cable I/O (Male)

MMSI cable connectors are used in cable applications where signal integrity is desired. The connector interface controls the polarization of the twinax contact style. Comes with a variety of wiring and hardware options. All cable connectors are available in custom lengths.

Sample Part Number Format: MMSI-01L-14B0-006-2810

1. Overall braid and/or Halar® will be 1.0 ± 0.5 inches shorter than specified wire length. Mini
   mum length without overall braid or Halar® is 3 inches. If overall braid or Halar® is specified
   the minimum length is 6 inches.

2. Option not RoHS-compliant

3. Left or right polarization is determined by looking at the male interface with the LONG SIDE
   downward. Polarization matches the angled side. Sidebands are on the non-angled side.

4. Captivated hardware is factory-installed and non-removable.

5. Factory-installed and non-removable.

6. Refer to “Keying Hardware Options” on page 61.

NOTES - Continued

1. Overall braid and/or Halar® will be 1.0 ± 0.5 inches shorter than specified wire length. Mini
   mum length without overall braid or Halar® is 3 inches. If overall braid or Halar® is specified
   the minimum length is 6 inches.

2. Option not RoHS-compliant

3. Left or right polarization is determined by looking at the male interface with the LONG SIDE
   downward. Polarization matches the angled side. Sidebands are on the non-angled side.

4. Captivated hardware is factory-installed and non-removable.

5. Factory-installed and non-removable.

6. Refer to “Keying Hardware Options” on page 61.

PERFORMANCE

Contact Rating: 3 amperes maximum
Operating Temperature: -55°C to 125°C
Maximum Working Voltage: 250V RMS, 60Hz
Insulation Resistance: 5,000 megohms minimum @ 500 VDC
Durability: 500 connector mating cycles
Contact Engaging Force: 6.0 ounces maximum/contact
Contact Separating Force: 10 ounces maximum/contact
Mating and Unmating Force: 6.0 ounces maximum/contact

NOTE: Performance values are estimates at this time. Actual values will be determined when final
product testing is complete.

MATERIALS and FINISHES

Socket Contact: Brass
Pin Contacts: BeCu alloy strip
Contact Finish: Gold plate, 50 µm minimum
Shells: Aluminum alloy 6061-T6
Shell Finishes: Electroless nickel or gold
Molded Insulators: Glass-filled liquid crystal polymer (LCP)
Embedment: Frey Eng. Co. compound CF3003-80 & L-II-49
Hardware: Corrosion-resistant steel
Interfacial Seal Gaskets: Fluorosilicone
EMI Gaskets: Corrosion-resistant steel

NOTE: AirBorn can manufacture special configurations to your exact specifications.

www.airborn.com
(512) 863-5585

MMSIM-PNB-1D
MMSI DIMENSIONS (PLUG)

ISOMETRIC VIEW
MMSI-01L-1490-006-2810
FOR REFERENCE ONLY

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x</td>
<td>1.636</td>
<td>1.377</td>
<td>.840</td>
<td>1.053</td>
</tr>
<tr>
<td>4x</td>
<td>2.266</td>
<td>2.007</td>
<td>1.470</td>
<td>1.683</td>
</tr>
<tr>
<td>8x</td>
<td>3.106</td>
<td>2.847</td>
<td>2.310</td>
<td>2.523</td>
</tr>
</tbody>
</table>

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.

1. See next page for cable with braid or Halar®
2. Plug to receptacle jumper shown. See Part Number Buildup for available options.
3. See “Polarized Interface Pinouts” on page 59
4. See “Keying Hardware Options” on page 61
MMSI DIMENSIONS with HALAR® SLEEVE (PLUG)

1. See previous page for cable without braid or Halar®
2. Plug to receptacle jumper shown. See Part Number Buildup for available options.
3. See “Polarized Interface Pinouts” on page 59
4. See “Keying Hardware Options” on page 61
MMSI – Cable I/O (Female)
MMSI cable connectors are used in cable applications where signal integrity is desired. The connector interface controls the polarization of the twinax contact style. Comes with a variety of wiring and hardware options. All cable connectors are available in custom lengths.

NOTES
1. Overall braid and/or Halar® will be 1.0 ± 0.5 inches shorter than specified wire length. Minimum length without overall braid or Halar® is 3 inches. If overall braid or Halar® is specified the minimum length is 6 inches.
2. All microSI females have fluorosilicone interfacial seals installed.
3. Option not RoHS-compliant
4. Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. Polarization matches the oriented side. Sidebands are on the non-oriented side.
5. Captivated hardware is factory-installed and non-removable.

** Refer to “Keying Hardware Options” on page 61.

MATERIALS and FINISHES
Socket Contact: ................................................. Brass
Pin Contacts: ................................................. BeCu alloy strip
Contact Finish: ................................................. Gold plate, 50 µm minimum
Shells: .......................................................... Aluminum alloy 6061-T6
Shell Finishes: .................................................. Corrosion-resistant steel or gold
Molded Insulators: ............................................. Glass-filled liquid crystal polymer (LCP)
Hardware: ....................................................... Frey Eng. Co. compound CF3003-80 & L-44-49
EMI Gaskets: ................................................... Corrosion-resistant steel

NOTE: AirBorn can manufacture special configurations to your exact specifications.

PERFORMANCE
Contact Rating: ............................................. 3 amperes maximum
Operating Temperature: .................................. -55°C to 125°C
Maximum Working Voltage: ............................. 200V, RMS, 60Hz
Insulation Resistance: ..................................... 5,000 megohms minimum @ 500 VDC
Durability: ....................................................... 500 connector mating cycles
Contact Engaging Force: ................................. 6.0 ounces maximum/contact
Contact Separating Force: ............................... 0.5 ounces minimum/contact
Mating and Unmating Force: .......................... 10 ounces maximum/contact

NOTE: Performance values are estimates at this time. Actual values will be determined when final product testing is complete.

Sample Part Number Format: MMSI-01L-24B0-006-2810

www.airborn.com
(512) 863-5585

MMSIF-PNB-1D
MMSI DIMENSIONS (RECEPTACLE)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x</td>
<td>1.636</td>
<td>1.377</td>
<td>.840</td>
<td>1.053</td>
</tr>
<tr>
<td>4x</td>
<td>2.266</td>
<td>2.007</td>
<td>1.470</td>
<td>1.683</td>
</tr>
<tr>
<td>8x</td>
<td>3.106</td>
<td>2.847</td>
<td>2.310</td>
<td>2.523</td>
</tr>
</tbody>
</table>

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.

1. See next page for cable with braid or Halar®
2. Plug to receptacle jumper shown. See Part Number Buildup for available options.
3. See “Polarized Interface Pinouts” on page 59
4. See “Keying Hardware Options” on page 61
**MMSI DIMENSIONS with HALAR® SLEEVE (RECEPTACLE)**

**ISOMETRIC VIEW OF RCPT END**

MMSI-01L-24B3-006-2810
FOR REFERENCE ONLY

**LEFT POLARIZATION SHOWN**
(SEE PART NUMBER BUILDUP
NOTES FOR DETAILS)

### SIZE | A | B | C | D
--- | --- | --- | --- | ---
1x | 1.636 | 1.377 | .840 | 1.053
4x | 2.266 | 2.007 | 1.470 | 1.683
8x | 3.106 | 2.847 | 2.310 | 2.523

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.

1. See previous page for cable without braid or Halar®
2. Plug to receptacle jumper shown. See Part Number Buildup for available options.
3. See “Polarized Interface Pinouts” on page 59
4. See “Keying Hardware Options” on page 61
MJSI – Cable Assembly

MJSI cable assemblies are used in jumper applications where signal integrity is desired. They have a wide range of styles, wiring options, and hardware options. All cable assemblies are available in custom lengths.

Sample Part Number Format: MJSI-01L-24B0-018-2810

- SERIES
  Cable Assembly: 1.78 mm

- SIZE & INTERFACE
  POLARIZATION*
  01L – 1X Left (23 pins, 4 DP +9SB)
  01R – 1X Right (23 pins, 4 DP +9SB)
  04L – 4X Left (41 pins, 10 DP +9SB)
  04R – 4X Right (41 pins, 10 DP +9SB)
  08L – 8X Left (65 pins, 18 DP +9SB)
  08R – 8X Right (65 pins, 18 DP +9SB)

- STYLE
  11 – Male-to-Male, Twinax 100Ω 24 AWG
  14 – Male-to-Male, Twinax 100Ω 30 AWG
  21 – Male-to-Female, Twinax 100Ω 24 AWG
  24 – Male-to-Female, Twinax 100Ω 30 AWG
  31 – Female-to-Female, Twinax 100Ω 24 AWG
  34 – Female-to-Female, Twinax 100Ω 30 AWG

- OVERALL****
  0 – None
  1 – Silver-plated braid
  2 – Tin-plated braid
  3 – Silver-plated braid, Halar® sleeving
  4 – Tin-plated braid, Halar® sleeving
  5 – Halar® sleeving (no braid)

- WIRE LENGTH*
  Inches, 3 digits
  Ex. 018 = 18 inches

- SIDEWIRE WIRE LENGTH
  (color code per MIL-STD-681)
  A – 22759/11-24
  B – 22759/11-26
  C – 22759/11-28
  D – 22759/33-24
  E – 22759/33-26
  F – 22759/33-28
  G – 22759/33-30
  H – NEMA HP3-EXBB 24 AWG
  J – NEMA HP3-EXBB 26 AWG
  K – NEMA HP3-EXCB 28 AWG
  L – NEMA HP3-EXBB 30 AWG

- BODY PLATING, INTERNAL SOLDER
  1 – Electroless nickel, SAC305
  2 – Electroless nickel, Sn/Pb
  5 – Gold, SAC305
  6 – Gold, Sn/Pb

- MATERIALS and FINISHES
  Socket Contact: BeCu alloy strip
  Pin Contacts: Aluminum alloy 6061-T6
  Contact Finish: Gold plate, 50 µ” minimum
  Shells: Corrosion-resistant steel
  Internal Solder: Sn/Pb, SAC305
  Shell Finishes: Frey Eng. Co. compound CF3003-80 & L-II-49
  Molded Insulators: Glass-filled liquid crystal polymer (LCP)
  Interfacial Seal Gaskets: Fluorosilicone
  EMI Gaskets: Corrosion-resistant steel

- PERFORMANCE
  Contact Rating: 3 amperes maximum
  Operating Temperature: -55°C to 125°C
  Maximum Working Voltage: 200V, RMS, 60Hz
  Insulation Resistance: 5,000 megohms minimum @ 500 VDC
  Durability: 500 connector mating cycles
  Contact Engaging Force: 6.0 ounces maximum/contact
  Contact Separating Force: 0.5 ounces minimum/contact
  Mating and Unmating Force: 10 ounces maximum/contact

- NOTES
  1. All microSI females have fluorosilicone interfacial seals installed.
  2. Overall braid and/or Halar® will be 1.0 ± 0.5 inches shorter than specified wire length. Minimum length without overall braid or Halar® is 3 inches. If overall braid or Halar® is specified the minimum length is 6 inches.
  3. Hardware is the same for both connectors unless otherwise noted.
  * Option not RoHS-compliant
  ** Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. Polarization matches the angled side. Sidebands are on the non-angled side.
  *** Captivated hardware is factory-installed and non-removable.
  **** Refer to “Keying Hardware Options” on page 61.

- CONTACT CUSTOMER SERVICE
  CALL 512-863-5585 x6400

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.
MJSI DIMENSIONS

1. See next page for cable with braid or Halar®
2. Plug to receptacle jumper shown. See Part Number Buildup for available options.
3. See “Polarized Interface Pinouts” on page 59
4. See "Keying Hardware Options" on page 61
MJSI DIMENSIONS with HALAR® SLEEVE

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x</td>
<td>1.636</td>
<td>1.377</td>
<td>.840</td>
<td>1.053</td>
</tr>
<tr>
<td>4x</td>
<td>2.266</td>
<td>2.007</td>
<td>1.470</td>
<td>1.683</td>
</tr>
<tr>
<td>8x</td>
<td>3.106</td>
<td>2.847</td>
<td>2.310</td>
<td>2.523</td>
</tr>
</tbody>
</table>

1. See previous page for cable without braid or Halar®
2. Plug to receptacle jumper shown. See Part Number Buildup for available options.
3. See “Polarized Interface Pinouts” on page 59
4. See “Keying Hardware Options” on page 61

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MJSI MATING FACE ORIENTATION

MATING FACE ORIENTATION

PLUG TO RECEPTACLE

PLUG TO PLUG

RECEPTACLE TO RECEPTACLE

LEFT POLARIZATION SHOWN
(SEE PART NUMBER BUILDUP NOTES FOR DETAILS)
MKSI – Right Angle (Male)
MKSI right angle board surface mount connectors are used in applications where signal integrity is desired. The connector interface controls the polarization of the connector. Comes with a variety of hardware options.

Sample Part Number Format: MKSI-01R-1000-175-2810

**NOTES**
- Option not RoHS-compliant.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. Polarization matches the angled side. Sidebands are on the non-angled side.
- Captivated hardware is factory-installed and non-removable.
- Factory-installed and non-removable. Refer to “Keying Hardware Options” on page 61.

**MATERIALS and FINISHES**
- Socket Contact: Brass
- Pin Contacts: BeCu alloy strip
- Contact Finish: Gold plate, 50 μ" minimum
- Shells: Aluminum alloy 6061-T6
- Shell Finishes: Electroless nickel or gold
- Molded Insulators: Glass-filled liquid crystal polymer (LCP)
- Embedment: Frey Eng. Co. compound CF3003-80 & L-II-49
- Hardware: Corrosion-resistant steel
- Interfacial Seal Gaskets: Fluorosilicone
- EMI Gaskets: Corrosion-resistant steel

**PERFORMANCE**
- Contact Rating: 3 amperes maximum
- Operating Temperature: -55° C to 125° C
- Maximum Working Voltage: 200V, RMS, 60Hz
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Engaging Force: 6.0 ounces maximum/contact
- Contact Separating Force: 0.5 ounces minimum/contact
- Mating and Unmating Force: 10 ounces maximum/contact

**NOTE:** Performance values are estimates at this time. Actual values will be determined when final product testing is complete.

**MATERIALS and FINISHES**
- Pin Termination: (50 μ" Au Contact)
- Style: 1000 – Male
- Body Plating: 2 – Electroless nickel
- Hardware: 620 – Fixed jacknut

**SIGNAL INTEGRITY PERFORMANCE (Connectors Only)**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Impedance, filtered to 79 ps (20-80%)</td>
<td>100 ohm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Insertion Loss</td>
<td>10 GHz @ -3 dB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Return Loss</td>
<td>7.5 GHz @ -10 dB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Intra-Pair</td>
<td>&lt; 2 ps</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61
MKSI RECOMMENDED PC BOARD LAYOUT (PLUG)

1X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (PLUG)

1X Sample with Right Polarization

**NOTE:** ALL PADS MUST BE FREE OF SOLDER MASK

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.
MKSI RECOMMENDED PC BOARD LAYOUT (PLUG)

4X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (PLUG)

4X Sample with Right Polarization

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (PLUG)

8X Sample with Left Polarization

**NOTE:** All pads must be free of solder mask.

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (PLUG)

8X Sample with Right Polarization

(0.026) TYP
(0.036) TYP

(0.120) TYP

(0.023) OPTIONAL ANCHOR VAS
CHASSIS GROUND MUST BE FREE OF SOLDER MASK (0.040) TYP

(0.070) PAD TO PAD TYP

2X (.081)
.035 REF
.
.140

2X (.200)
2X (.125) THRU

2X (.030)

2X (.324)

(30°)

CHASSIS GROUND MUST BE FREE OF SOLDER MASK

2X (.429)
2X 495 MAX (BOARD EDGE)

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
MKSI – Right Angle (Female)
MKSI right angle board surface mount connectors are used in applications where signal integrity is desired. The connector interface controls the polarization of the connector. Comes with a variety of hardware options.

**Sample Part Number Format: MKSI-01L-2000-275-2620**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>SIZE &amp; INTERFACE POLARIZATION*</th>
<th>STYLE</th>
<th>SOCKET TERMINATION (50 µ&quot; Au Contact)</th>
<th>BODY PLATING</th>
<th>HARDWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Angle</td>
<td>04L – 4X Left (41 pins, 10 DP +9SB)</td>
<td>2000 - Female</td>
<td>275 – Sn/Pb alloy</td>
<td>2 – Electroless nickel</td>
<td>620 – Fixed jacknut</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All microSI females have fluorosilicone interfacial seals installed.</td>
</tr>
<tr>
<td>☑ Option not RoHS-compliant.</td>
</tr>
<tr>
<td>* Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. Polarization matches the angled side. Sidebands are on the non-angled side.</td>
</tr>
<tr>
<td>** Captivated hardware is factory-installed and non-removable.</td>
</tr>
<tr>
<td>*** Factory-installed and non-removable. Refer to “Keying Hardware Options” on page 61.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATERIALS and FINISHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socket Contact: 4684 BeCu alloy strip</td>
</tr>
<tr>
<td>Contact Finish: Gold plate, 50 µ&quot; minimum</td>
</tr>
<tr>
<td>Shell Finishes: Aluminum alloy 6061-T6, Electroless nickel or gold</td>
</tr>
<tr>
<td>Molded Insulators: Glass-filled liquid crystal polymer (LCP)</td>
</tr>
<tr>
<td>Embedment: Frey Eng. Co. compound CF3003-80 &amp; L-II-49</td>
</tr>
<tr>
<td>Hardware: Corrosion-resistant steel</td>
</tr>
<tr>
<td>Interfacial Seal Gaskets: Fluorosilicone</td>
</tr>
<tr>
<td>EMI Gaskets: Corrosion-resistant steel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Rating: 3 amperes maximum</td>
</tr>
<tr>
<td>Operating Temperature: -55°C to 125°C, 50VDC</td>
</tr>
<tr>
<td>Maximum Working Voltage: 200V, RMS, 60Hz</td>
</tr>
<tr>
<td>Insulation Resistance: 5,000 megohms minimum @ 500 VDC</td>
</tr>
<tr>
<td>Durability: 500 connector mating cycles</td>
</tr>
<tr>
<td>Contact Engaging Force: 6.0 ounces maximum/contact</td>
</tr>
<tr>
<td>Contact Separating Force: 0.5 ounces minimum/contact</td>
</tr>
<tr>
<td>Mating and Unmating Force: 10 ounces maximum/contact</td>
</tr>
</tbody>
</table>

**NOTE: AirBorn can manufacture special configurations to your exact specifications.**

**GENERAL DIMENSIONS**

**SIGNAL INTEGRITY PERFORMANCE (Connectors Only)**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Impedance, filtered to 79 ps (20-80%)</td>
<td>100 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Insertion Loss</td>
<td>10 GHz @ -3 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Return Loss</td>
<td>7.5 GHz @ -10 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Intra-Pair</td>
<td>&lt; 2 ps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**www.airborn.com**
(512) 863-5585
A LEFT plug mates with a LEFT receptacle.

A RIGHT plug mates with a RIGHT receptacle.

Left-polarization connectors will not mate with right-polarization connectors.

See “Polarized Interface Pinouts” on page 59

See “Keying Hardware Options” on page 61
MKSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)

1X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK
MKSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)

1X Sample with Right Polarization

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)

4X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)

4X Sample with Right Polarization

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MKSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)

8X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
8X Sample with Right Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
MLSI – Vertical (Male)
MLSI vertical board surface mount connectors are used in applications where signal integrity is desired. The connector interface controls the polarization of the connector. Comes with a variety of hardware options.

NOTES
- Option not RoHS-compliant.
- Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. Polarization matches the angled side. Sidebands are on the non-angled side.
- Captivated hardware is factory-installed and non-removable.
- Factory-installed and non-removable. Refer to “Keying Hardware Options” on page 61.

MATERIALS and FINISHES
Socket Contact: ................. Brass
Pin Contacts: ................. BeCu alloy strip
Contact Finish: ................. Gold plate, 50 μ" minimum
Sheets: ................. Aluminum alloy 6061-T6
Shell Finishes: ................. Electroless nickel or gold
Molded Insulators: ................. Glass-filled liquid crystal polymer (LCP)
Embedment: ................. Frey Eng. Co. compound CF3003-80 & L-I-49
Hardware: ................. Corrosion-resistant steel
Interfacial Seal Gaskets: ................. Fluorosilicone
EMI Gaskets: ................. Corrosion-resistant steel

NOTE: AirBorn can manufacture special configurations to your exact specifications.

PERFORMANCE
Contact Rating: ................. 3 amperes maximum
Operating Temperature: ................. -55° C to 125° C
Maximum Working Voltage: ................. 200V, RMS, 60Hz
Insulation Resistance ................. 5,000 megohms minimum @ 500 VDC
Durability: ................. 500 connector mating cycles
Contact Engaging Force: ................. 6.0 ounces maximum/contact
Contact Separating Force: ................. 0.5 ounces minimum/contact
Mating and Unmating Force: ................. 10 ounces maximum/contact

NOTE: Performance values are estimates at this time. Actual values will be determined when final product testing is complete.
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
1X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61
1X Sample with Right Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
MLSI RECOMMENDED PC BOARD LAYOUT (PLUG)

4X Sample with Left Polarization

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
**MLSI RECOMMENDED PC BOARD LAYOUT (PLUG)**

**4X Sample with Right Polarization**

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61

*Note: All pads must be free of solder mask*

Please consult the Airborn website for the latest revision of this document prior to beginning any design work.
PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
**MLSI – Vertical (Female)**

MLSI vertical board surface mount connectors are used in applications where signal integrity is desired. The connector interface controls the polarization of the connector. Comes with a variety of hardware options.

---

**Sample Part Number Format: MLSI-04L-2000-478-2810**

**NOTES**

1. All microSI females have fluorosilicone interfacial seals installed.
   - Option not RoHS-compliant.
2. Left or right polarization is determined by looking at the male interface with the LONG SIDE downward. Polarization matches the angled side. Sidebands are on the non-angled side.
3. Captivated hardware is factory-installed and non-removable.

---

**MATERIALS and FINISHES**

- **Socket Contact:** BeCu alloy strip
- **Contact Finish:** Gold plate, 50 µ” minimum
- **Shells:** Aluminum alloy 6061-T6
- **Shell Finishes:** Electroless nickel or gold
- **Molded Insulators:** Glass-filled liquid crystal polymer (LCP)
- **Embedment:** Frey Eng. Co. compound CF3003-80 & L-II-49
- **Hardware:** Corrosion-resistant steel
- **Interfacial Seal Gaskets:** Fluorosilicone
- **EMI Gaskets:** Corrosion-resistant steel

**PERFORMANCE**

- **Contact Rating:** 3 amperes maximum
- **Operating Temperature:** -55° C to 125° C
- **Maximum Working Voltage:** 200V, RMS, 60Hz
- **Insulation Resistance:** 5,000 megohms minimum @ 500 VDC
- **Durability:** 500 connector mating cycles
- **Contact Engaging Force:** 6.0 ounces maximum/contact
- **Contact Separating Force:** 0.5 ounces minimum/contact
- **Mating and Unmating Force:** 10 ounces maximum/contact

**Contact Customer Service**

CALL 512-863-5585 x6400
MLSI DIMENSIONS (RECEPTACLE)

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
MLSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)

1X Sample with Left Polarization

- A LEFT plug mates with a LEFT receptacle.
- A RIGHT plug mates with a RIGHT receptacle.
- Left-polarization connectors will not mate with right-polarization connectors.
- See "Polarized Interface Pinouts" on page 59
- See "Keying Hardware Options" on page 61
1X Sample with Right Polarization

NOTE: ALL PADS MUST BE FREE OF SOLDER MASK

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
**MLSI RECOMMENDED PC BOARD LAYOUT (RECEPTACLE)**

4X Sample with Left Polarization

**PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.**

1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. See “Polarized Interface Pinouts” on page 59
5. See “Keying Hardware Options” on page 61

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
4. "Polarized Interface Pinouts" on page 59
5. See "Keying Hardware Options" on page 61
Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.

Polarization Mating:
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
INTERFACE PINOUT, RIGHT POLARIZATION

Plug

Receptacle

<table>
<thead>
<tr>
<th>G</th>
<th>= Ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>= Positive</td>
</tr>
<tr>
<td>n</td>
<td>= Negative</td>
</tr>
<tr>
<td>SB</td>
<td>= Sideband</td>
</tr>
</tbody>
</table>

Polarization Mating:
1. A LEFT plug mates with a LEFT receptacle.
2. A RIGHT plug mates with a RIGHT receptacle.
3. Left-polarization connectors will not mate with right-polarization connectors.
Select the appropriate two-digit number and include as the last two digits of the hardware code in the part number. Keying hardware is factory-installed and non-removable.
**POLARIZED KEYING HARDWARE OPTIONS (RECEPTACLE)**

Select the appropriate two-digit number and include as the last two digits of the hardware code in the part number. Keying hardware is factory-installed and non-removable.

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.
The AirBorn stackable compliant connector family is one of AirBorn’s solutions for high-density, board-to-board stacking applications. This connector family is available in 0.075" contact spacing and 100 Ω and 85 Ω differential serial buses.

- Wide variety of standard pin/tail lengths accommodate any board-to-board spacing
- 0.075" contact spacing
- Reliable “eye of the needle”-compliant section design eliminates soldering
- BeCu contacts (special high-conductivity, high-temperature alloy)
- Very robust socket contact (low-stress design)
- Individually repairable contacts
RC422 - Full Profile Board-to-Board Stackable Connector

Contact spacing: 0.075” (1.91 mm)

A full bodied high-density press-fit connector. Uses a patented female/compliant/male stacking contact system. Used in board-to-board stacking applications.

Contact spacing: 0.075” (1.91 mm)

RC422-PNB-1G
**RC422 - Bottom-of-Stack Board Mount Connector**

**Contact spacing:** 0.075" (1.91 mm)

A full bodied high-density press-fit connector. Uses a patented female/compliant/male stacking contact system. Used at the bottom of the stack in board-to-board stacking applications.

**MATED HEIGHT**
The connector body height is 0.300" and, when used with the -20 or -30 (0.270") contact, the mounting is flush (board-bottom-mounted to connector top). This board-bottom to connector-top spacing can be modified based on the contact selected by approximately the difference in pin length (see Table 2 in top window).

**MATERIALS and FINISHES**
- **Contact:** BeCu per ASTM B768 (BeCu C17410 brush alloy 174)
- **Contact Finish:** Gold per MIL-G-45204 over nickel per IAW QQ-N-290
- **Molded Insulator:** Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
- **Hardware:** Stainless steel per ASTM A582, passivated per ASTM 967

**PERFORMANCE**
- **Contact Rating:** 3 amperes
- **Operating Temperature:** -65°C to +125°C
- **Insulation Resistance:** 5,000 megohms minimum @ 500 VDC
- **Durability:** 500 connector mating cycles
- **Contact Resistance:** 3 to 5 milliohms (contact length-dependent)
- **Contact Engagement Force:** 4.0 oz (113 g) max. w/0.0246" dia. test pin
- **Contact Separation Force:** 0.5 oz (14 g) min. w/0.0226" dia. test pin
- **Compliant Insertion Force:** 22.5 lb (10.21 Kg) max. per contact
- **Compliant Removal Force:** 22.5 lb (10.21 Kg) max. per contact

**Si DATA – Differential 100 Ohm**
- **1** Diff. Insertion Loss: 5.0 GHz @ -3 dB
- **2** Diff. Return Loss: 2.0 GHz @ -8 dB
- **3** NEXT: 4.0 GHz @ -25 dB
- **4** FEXT: 4.0 GHz @ -35 dB

**Sample Part Number Format: RC422-052-101-3000**

**DIMENSIONS**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>1.010</td>
<td>0.784</td>
<td>0.900</td>
</tr>
<tr>
<td>32</td>
<td>1.164</td>
<td>1.274</td>
<td>0.900</td>
</tr>
<tr>
<td>75</td>
<td>1.914</td>
<td>1.684</td>
<td>1.350</td>
</tr>
<tr>
<td>100</td>
<td>2.364</td>
<td>2.134</td>
<td>1.600</td>
</tr>
<tr>
<td>125</td>
<td>2.899</td>
<td>2.659</td>
<td>2.325</td>
</tr>
<tr>
<td>150</td>
<td>3.393</td>
<td>3.109</td>
<td>2.775</td>
</tr>
<tr>
<td>200</td>
<td>4.239</td>
<td>4.009</td>
<td>3.675</td>
</tr>
<tr>
<td>250</td>
<td>5.214</td>
<td>4.984</td>
<td>4.650</td>
</tr>
<tr>
<td>300</td>
<td>6.114</td>
<td>5.884</td>
<td>5.550</td>
</tr>
</tbody>
</table>

**Tolerances:** ±0.030"
RC442 - Low Profile Board-to-Board Stackable Connector

Contact spacing: 0.075" (1.91 mm)
A low profile bodied, high-density press-fit connector. Uses a patented female/compliant/male stacking contact system. Used in board-to-board stacking applications.

MATED HEIGHT
The connector body height is 0.150" but the functional spacing (the bottom surface of the board, on which the connector is mounted, to the top of the connector below it) can be modified based on the contact/pin length selected (see Table 2 in top window).

SI DATA – Differential 100 Ohm

1  Diff. Insertion Loss  5.0 GHz @ -3 dB
2  Diff. Return Loss  2.0 GHz @ -8 dB
3   NEXT  4.0 GHz @ -25 dB
4    FEXT  4.0 GHz @ -35 dB

MATERIALS and FINISHES
Contact: BeCu per ASTM B788 (BeCu C17410 brush alloy 174)
Contact Finish: Gold per MIL-G-45204 over nickel per IAW QQ-N-290
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM A582, passivated per ASTM 967
Guides Pin/Socket: BeCu per ASTM B196/197, nickel-plated per QQ-N-290

NOTE: AirBorn can manufacture special configurations to your exact specifications.

PERFORMANCE
Contact Rating: 3 amperes
Operating Temperature: -65° C to +125° C
Insulation Resistance: 5,000 megohms minimum @ 500 VDC
Durability: 500 connector mating cycles
Contact Resistance: 3 to 5 milliohms (contact length dependent)
Contact Engagement Force: 4.0 oz (113 g) max. w/0.0246" dia. test pin
Contact Separation Force: 0.5 oz (14 g) min. w/0.0226" dia. test pin
Compliant Insertion Force: 22.5 lb (10.21 Kg) max. per contact
Compliant Removal Force: 4.5 lb (2.04 Kg) min. per contact

NOTE: AirBorn can manufacture special configurations to your exact specifications.
**RC4B2 - Bottom-of-Stack Cable Mating Connector (Female)**

Contact spacing: 0.075" (1.91 mm)

A full profile bodied female cable connector for use at the bottom of an RC board stack application.

---

### Sample Part Number Format: RC4B2-052-281-62ED

<table>
<thead>
<tr>
<th>SERIES</th>
<th>CONFIGURATION</th>
<th>PLATING</th>
<th>TYPE</th>
<th>VARIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stackable</td>
<td>028 – 4 Rows/7 Columns</td>
<td>1 – 50 µ&quot; Au</td>
<td>00 – None</td>
<td>Blank – None</td>
</tr>
<tr>
<td>Compliant</td>
<td>052 – 4 Rows/13 Columns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-Profile</td>
<td>076 – 4 Rows/19 Columns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Rows</td>
<td>100 – 4 Rows/25 Columns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.075&quot; Spacing</td>
<td>128 – 4 Rows/32 Columns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottom-of-Stack</td>
<td>152 – 4 Rows/38 Columns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MATERIALS and FINISHES

- **Contact**: BeCu per ASTM B196 or B197 (BeCu alloy 172 or 173)
- **Contact Finish**: Gold per MIL-G-45204 over nickel per QQ-N-290
- **Molded Insulator**: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
- **Hardware**: Stainless steel per ASTM A484/A484M and ASTM A582/A582M, passivated per SAE AMS-2700

**NOTE**: AirBorn can manufacture special configurations to your exact specifications.

### PERFORMANCE

- **Contact Rating**: 3 amperes
- **Operating Temperature**: -65° C to +125° C
- **Insulation Resistance**: 5,000 megohms minimum @ 500 VDC
- **Durability**: 500 connector mating cycles
- **Contact Resistance**: 3 to 5 milliohms (contact length dependent)
- **Contact Engagement Force**: 4.0 oz (113 g) max. w/0.0246" dia. test pin
- **Contact Separation Force**: 0.5 oz (14 g) min. w/0.0226" dia. test pin

---

**NOTES**

1. The RC4B2 connector is designed to mate with an RC422 connector using contact option -21 (0.270" long) and -39MT hardware. This contact length and hardware combination assures proper connector mating when using boards having a thickness of 0.058"–0.125".
2. When guide hardware is required on the RC4B2 connector, use hardware option -3900 on the mating connector.
3. When jacksocket hardware is required on the RC4B2 connector, use hardware option -39MT on the mating connector.
RC4C2 - Top-of-Stack Cable Mating Connector (Male)

Contact spacing: 0.075" (1.91 mm)
A full profile bodied male pre-wired cable connector for use at the top of an RC board stack application.

**MATED HEIGHT**
Connector body height is 0.325" and is designed to mount flush to the mating connector.

**NOTES**
* To use the -61 jackscrew hardware option, the fixed jacknut hardware (-XXFT) must be in place on the mating board connector.

**MATERIALS and FINISHES**
- Contact: BeCu per ASTM B196 or B197 (BeCu alloy 172 or 173)
- Contact Finish: Gold per MIL-G-45204 over nickel per QQ-N-290
- Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
- Hardware: Stainless steel per ASTM A484/A484M and ASTM A582/A582M, passivated per SAE AMS-2700

**PERFORMANCE**
- Contact Rating: 3 amperes
- Operating Temperature: -65° C to +125° C
- Insulation Resistance: 5,000 megohms minimum @ 500 VDC
- Durability: 500 connector mating cycles
- Contact Resistance: 3 to 5 millicoms (contact length dependent)
- Contact Engagement Force: 4.0 oz (113 g) max. w/0.0246" dia. test pin
- Contact Separation Force: 0.5 oz (14 g) min. w/0.0226" dia. test pin

Sample Part Number Format: RC4C2-052-181-57ED

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.
RC4C2 - Top-of-Stack Flex Circuit Mating Connector (Male)

Contact spacing: 0.075” (1.91 mm)
A full profile bodied flex-circuit-ready male connector for use at the top of an RC board stack application.

Contact: BeCu per ASTM B196 or B197 (BeCu alloy 172 or 173)
Contact Finish: Gold per MIL-G-45204 over nickel per QQ-N-290
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM A484/A484M and ASTM A582/A582M, passivated per SAE AMS-2700
Contact Rating: 3 amperes
Operating Temperature: -65° C to +125° C
Insulation Resistance: 5,000 megaohms minimum @ 500 VDC
Durability: 500 connector mating cycles
Contact Resistance: 3 to 5 milliohms (contact length dependent)
Contact Engagement Force: 4.0 oz (113 g) max. w/0.0246” dia. test pin
Contact Separation Force: 0.5 oz (14 g) min. w/0.0226” dia. test pin

PERFORMANCE

MATERIALS and FINISHES
Contact: BeCu per ASTM B196 or B197 (BeCu alloy 172 or 173)
Contact Finish: Gold per MIL-G-45204 over nickel per QQ-N-290
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM A484/A484M and ASTM A582/A582M, passivated per SAE AMS-2700

NOTE: AirBorn can manufacture special configurations to your exact specifications.

NOTES
* To use the -61 jackscrew hardware option, the fixed jacknut hardware (-XXFT) must be in place on the mating board connector.

Sample Part Number Format: RC4C2-052-151-5700

www.airborn.com
(512) 863-5585
RC4C2 - Top-of-Stack Solder Cup Cable Mating Connector (Male)

Contact spacing: 0.075" (1.91 mm)

A full profile bodied male wire-ready connector for use at the top of an RC board stack application.

Sample Part Number Format: RC4C2-052-111-6100

MATERIALS and FINISHES

Contact: BeCu per ASTM B196 or B197 (BeCu alloy 172 or 173)
Contact Finish: BeCu per ASTM B196 or B197 (BeCu alloy 172 or 173) or Gold per MIL-G-45204 over nickel per QQ-N-290
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM A484/A484M and ASTM A582/A582M, passivated per SAE AMS-2700

NOTES

* To use the -61 jackscrew hardware option, the fixed jacknut hardware (-XXFT) must be in place on the mating board connector.

PERFORMANCE

Contact Rating: 3 amperes
Operating Temperature: -65° C to +125° C
Insulation Resistance: 6,000 megohms minimum @ 500 VDC
Durability: 500 connector mating cycles
Contact Resistance: 3 to 5 milliohms (contact length dependent)
Contact Engagement Force: 4.0 oz (113 g) max. w/0.0246" dia. test pin
Contact Separation Force: 0.5 oz (14 g) min. w/0.0226" dia. test pin

www.airborn.com
(512) 863-5585

RC4C2S-PNB-1G
RC 4-ROW DIMENSIONS

Board material: FR-4 (or equivalent) with 1.0 oz. copper
Board thickness: 0.058" minimum
Drilled hole: Ø 0.033"

Copper plating thickness: 0.0020"
Tin-lead plating thickness: 0.0005"
Finished hold diameter: Ø 0.028" (Ø 0.028" ±0.002" required)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>1.014</td>
<td>0.784</td>
<td>0.450</td>
</tr>
<tr>
<td>52</td>
<td>1.464</td>
<td>1.234</td>
<td>0.900</td>
</tr>
<tr>
<td>76</td>
<td>1.914</td>
<td>1.684</td>
<td>1.350</td>
</tr>
<tr>
<td>100</td>
<td>2.364</td>
<td>2.134</td>
<td>1.800</td>
</tr>
<tr>
<td>128</td>
<td>2.889</td>
<td>2.659</td>
<td>2.325</td>
</tr>
<tr>
<td>152</td>
<td>3.339</td>
<td>3.109</td>
<td>2.775</td>
</tr>
<tr>
<td>200</td>
<td>4.239</td>
<td>4.009</td>
<td>3.675</td>
</tr>
<tr>
<td>252</td>
<td>5.214</td>
<td>4.984</td>
<td>4.650</td>
</tr>
<tr>
<td>300</td>
<td>6.114</td>
<td>5.884</td>
<td>5.500</td>
</tr>
</tbody>
</table>

TABLE 1

<table>
<thead>
<tr>
<th>CONTACT TERMINATION</th>
<th>CONTACT D</th>
<th>HARDWARE E</th>
</tr>
</thead>
<tbody>
<tr>
<td>201, 301</td>
<td>0.270</td>
<td>0.370</td>
</tr>
<tr>
<td>211, 311</td>
<td>0.300</td>
<td>0.400</td>
</tr>
<tr>
<td>221, 321</td>
<td>0.400</td>
<td>0.500</td>
</tr>
<tr>
<td>231, 331</td>
<td>0.500</td>
<td>0.600</td>
</tr>
<tr>
<td>241, 341</td>
<td>0.700</td>
<td>0.800</td>
</tr>
<tr>
<td>251, 351</td>
<td>0.800</td>
<td>0.900</td>
</tr>
<tr>
<td>261, 361</td>
<td>0.900</td>
<td>1.000</td>
</tr>
<tr>
<td>271, 371</td>
<td>0.600</td>
<td>0.700</td>
</tr>
<tr>
<td>281, 381</td>
<td>1.000</td>
<td>1.100</td>
</tr>
<tr>
<td>101</td>
<td>0.095</td>
<td>0.195</td>
</tr>
</tbody>
</table>
## PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- **Board material:** FR-4 (or equivalent) with 1.0 oz. copper
- **Board thickness:** 0.058” minimum
- **Drilled hole:** Ø 0.033”
- **Copper plating thickness:** 0.0020”
- **Tin-lead plating thickness:** 0.0005”
- **Finished hold diameter:** Ø 0.028” (Ø 0.028” ± 0.002” required)

### DIMENSIONS

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>1.014</td>
<td>0.784</td>
<td>0.450</td>
</tr>
<tr>
<td>52</td>
<td>1.464</td>
<td>1.234</td>
<td>0.900</td>
</tr>
<tr>
<td>76</td>
<td>1.914</td>
<td>1.684</td>
<td>1.350</td>
</tr>
<tr>
<td>100</td>
<td>2.364</td>
<td>2.134</td>
<td>1.800</td>
</tr>
<tr>
<td>128</td>
<td>2.889</td>
<td>2.659</td>
<td>2.325</td>
</tr>
<tr>
<td>152</td>
<td>3.339</td>
<td>3.109</td>
<td>2.775</td>
</tr>
<tr>
<td>200</td>
<td>4.239</td>
<td>4.009</td>
<td>3.675</td>
</tr>
<tr>
<td>252</td>
<td>5.214</td>
<td>4.984</td>
<td>4.650</td>
</tr>
<tr>
<td>300</td>
<td>6.114</td>
<td>5.884</td>
<td>5.500</td>
</tr>
</tbody>
</table>

![Board Footprint and Dimensions Diagram](image)
PWB-PLATED THRU-HOLE RECOMMENDATIONS:

<table>
<thead>
<tr>
<th>Board material: FR-4 (or equivalent) with 1.0 oz. copper</th>
<th>Copper plating thickness: 0.0020”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board thickness: 0.058” minimum</td>
<td>Tin-lead plating thickness: 0.0005”</td>
</tr>
<tr>
<td>Drilled hole: Ø 0.033”</td>
<td>Finished hold diameter: Ø 0.028” (Ø 0.028” ±0.002” required)</td>
</tr>
</tbody>
</table>

Determining the Required Termination Lead Length

To calculate the required termination lead length, use the example below. Measurements listed are in inches.

Dimension A = 0.720

0.720 – 0.300 (insulator height) = 0.420
0.420 + 0.114 (minimum pin engagement) = 0.534
0.420 + 0.214 (maximum pin engagement) = 0.634

In this example, the termination option to choose is 0.600 lead length.

The contact termination option will be a length that falls between the calculated numbers resulting from using the minimum and maximum pin engagement.
PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hold diameter: Ø 0.028" (Ø 0.028" ±0.002" required)
RC 4-ROW, BOTTOM-COMPLIANT DIMENSIONS

DIMENSIONS

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>1.014</td>
<td>0.784</td>
<td>0.450</td>
</tr>
<tr>
<td>52</td>
<td>1.464</td>
<td>1.234</td>
<td>0.900</td>
</tr>
<tr>
<td>76</td>
<td>1.914</td>
<td>1.684</td>
<td>1.350</td>
</tr>
<tr>
<td>100</td>
<td>2.364</td>
<td>2.134</td>
<td>1.800</td>
</tr>
<tr>
<td>128</td>
<td>2.889</td>
<td>2.659</td>
<td>2.325</td>
</tr>
<tr>
<td>152</td>
<td>3.339</td>
<td>3.109</td>
<td>2.775</td>
</tr>
<tr>
<td>200</td>
<td>4.239</td>
<td>4.009</td>
<td>3.675</td>
</tr>
</tbody>
</table>

PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058” minimum
- Drilled hole: Ø 0.033”
- Copper plating thickness: 0.0020”
- Tin-lead plating thickness: 0.0005”
- Finished hold diameter: Ø 0.028” (Ø 0.028” ±0.002” required)
RC 4-ROW, BOTTOM-COMPLIANT DRAWINGS

PLUG CONNECTOR REQUIRES
"MT-TYPE" HARDWARE TO MATE
WITH THE JACKING HARDWARE

RECEPTACLE CONNECTOR
WITH TURNING JACKSOCKET

PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hold diameter: Ø 0.028” (Ø 0.028” ±0.002” required)
RC 4-ROW, TOP-COMPLIANT DIMENSIONS

PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hole diameter: Ø 0.028" (Ø 0.028" ±0.002" required)
PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hold diameter: Ø 0.028" (Ø 0.028" ±0.002" required)
The AirBorn stackable compliant connector family is one of AirBorn’s solutions for high-density, board-to-board stacking applications. This connector family is available in 0.075” contact spacing and 100 Ω and 85 Ω differential serial buses.

- Wide variety of standard pin/tail lengths accommodate any board-to-board spacing
- 0.075” contact spacing
- Reliable “eye of the needle”-compliant section design eliminates soldering
- BeCu contacts (special high-conductivity, high-temperature alloy)
- Very robust socket contact (low-stress design)
- Individually repairable contacts
RC324 - 3-Row Bottom-of-Stack Board Mount Connector with SI

Contact spacing: 0.075” (1.91 mm)

A full bodied high-density press-fit connector with a 3-row aligned contact field for improved signal integrity. Use at the bottom of an RCII board stack application.

Sample Part Number Format: RC324-050-101-3000

MATERIALS and FINISHES

Contact: BeCu per ASTM-B768 (BeCu C17410 brush alloy 174)
Contact Finish: Gold per MIL-G-45204 over nickel per JAW QQ-N-290
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM-A582, passivated per ASTM-A967
Guide Pin/Socket: BeCu per ASTM-B196/197, nickel-plated per QQ-N-290

NOTE: AirBorn can manufacture special configurations to your exact specifications.

PERFORMANCE

Contact Rating: 3 amperes
Operating Temperature: -65°C to +125°C
Insulation Resistance: 5.000 megohms minimum @ 500 VDC
Durability: 500 connector mating cycles
Contact Resistance: 3 to 5 milliohms (contact length dependent)
Contact Engagement Force: 4.0 oz. (113 g.) max. w/0.0246” dia. test pin
Contact Separation Force: 0.5 oz. (14 g.) min. w/0.0226” dia. test pin
Compliant Insertion Force: 22.5 lb. (10.21 Kg.) max. per contact
Compliant Removal Force: 4.5 lb. (2.04 Kg.) min. per contact

NOTE: Performance values are estimates at this time. Actual values will be determined when final product testing is complete.
RC324 - 3-Row Mid/Top-of-Stack Connector with SI

Contact spacing: 0.075” (1.91 mm)

A full bodied high-density press-fit connector with a 4-row aligned contact field for improved signal integrity. Use in RCII board-to-board stacking applications and/or at the top of the board stack.

Contact: BeCu per ASTM-B768 (BeCu C17410 brush alloy 174)
Contact Finish: Gold per MIL-G-45204 over nickel per IAW QQ-N-290
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM-A582, passivated per ASTM-A967
Guide Pin/Socket: BeCu per ASTM-B196/197, nickel-plated per QQ-N-290

Contact Rating: 3 amperes
Operating Temperature: -65°C to +125°C
Insulation Resistance: 5,000 megohms minimum @ 500 VDC
Durability: 500 connector mating cycles
Contact Resistance: 3 to 5 milliohms (contact length dependent)
Contact Engagement Force: 4.0 oz. (113 g.) max. w/0.0246” dia. test pin
Contact Separation Force: 0.5 oz. (14 g.) min. w/0.0226” dia. test pin
Compliant Insertion Force: 22.5 lb. (10.21 Kg.) max. per contact
Compliant Removal Force: 4.5 lb. (2.04 Kg.) min. per contact

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.

www.airborn.com
(512) 863-5585

Sample Part Number Format: RC324-050-201-3900

Contact: 
Contact Finish: 
Molded Insulator:
Hardware:
Guide Pin/Socket:

Series
Configurations
Plating
Contact
Hardware
Type
Variation

RC324 - PNB-2F

Si Data – Differential 100 Ohm

1 Diff. Insertion Loss 6.0 GHz @ -3 dB
2 Diff. Return Loss 4.6 GHz @ -20 dB
3 NEXT 4.0 GHz @ -50 dB
4 FEXT 4.0 GHz @ -48 dB

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.
**RC424 - 4-Row Bottom-of-Stack Board Mount Connector with SI**

Contact spacing: 0.075” (1.91 mm)

A full bodied high-density press-fit connector with a 4-row aligned contact field for improved signal integrity. Use at the bottom of an RCII board stack application.

### Dimensions

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>1.235</td>
<td>1.085</td>
<td>0.675</td>
</tr>
<tr>
<td>50</td>
<td>2.908</td>
<td>1.780</td>
<td>1.410</td>
</tr>
<tr>
<td>99</td>
<td>2.795</td>
<td>2.055</td>
<td>2.215</td>
</tr>
<tr>
<td>120</td>
<td>3.540</td>
<td>2.110</td>
<td>3.000</td>
</tr>
</tbody>
</table>

Tolerance: ± 0.010”

### Sample Part Number Format: RC424-060-101-3000

- **RC424**
- **Series**
  - Stackable
  - Compliant
  - Full-Profile
  - 4 Rows
  - 0.075” Spacing
- **Configuration**
  - 030 – 4 Rows/1 Bay
  - 060 – 4 Rows/2 Bays
  - 090 – 4 Rows/3 Bays
  - 120 – 4 Rows/4 Bays
- **Plating**
  - 1 – 50 µ” Au
- **Contact**
  - 10 – 0.095” Long
- **Hardware**
  - 30 – 0.195” Long (use with #10 contact)
- **Type**
  - 00 – None
- **Variation**
  - Blank – None
  - XXX – Consult factory

### Mated Height

The connector body height is 0.300” and, when used with the -20 or -30 (0.270”) contact, the mounting is flush (board-bottom mounted to connector top). This board-bottom to connector top spacing can be modified based on the contact selected by approximately the difference in pin length. See Table 2.

### SI Data

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Insertion Loss</td>
<td>6.0 GHz @ -3 dB</td>
</tr>
<tr>
<td>2</td>
<td>Diff. Return Loss</td>
<td>4.6 GHz @ -20 dB</td>
</tr>
<tr>
<td>3</td>
<td>NEXT</td>
<td>4.0 GHz @ -50 dB</td>
</tr>
<tr>
<td>4</td>
<td>FEXT</td>
<td>4.0 GHz @ -48 dB</td>
</tr>
</tbody>
</table>

### Materials and Finishes

- **Contact**: BeCu per ASTM-B768 (BeCu C17410 brush alloy 174)
- **Contact Finish**: Gold per MIL-G-45204 over nickel per IAW QQ-N-290
- **Molded Insulator**: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
- **Hardware**: Stainless steel per ASTM-A582, passivated per ASTM-A967
- **Guide Pin/Socket**: BeCu per ASTM-B196/197, nickel-plated per QQ-N-290

**Note**: AirBorn can manufacture special configurations to your exact specifications.

### Performance

- **Contact Rating**: 3 amperes
- **Operating Temperature**: -65°C to +125°C
- **Insulation Resistance**: 5,000 megohms minimum @ 500 VDC
- **Durability**: 500 connector mating cycles
- **Contact Resistance**: 3 to 5 milliohms (contact length dependent)
- **Contact Engagement Force**: 4.0 oz. (113 g.) max. @ 0.0246” dia. test pin
- **Contact Separation Force**: 0.5 oz. (14 g.) min. @ 0.0226” dia. test pin
- **Compliant Insertion Force**: 22.5 lb. (10.21 Kg.) max. per contact
- **Compliant Removal Force**: 4.5 lb. (2.04 Kg.) min. per contact

**Note**: Performance values are estimates at this time. Actual values will be determined when final product testing is complete.
RC424 - 4-Row Mid/Top-of-Stack Connector with SI

Contact spacing: 0.075” (1.91 mm)

A full bodied high-density press-fit connector with a 4-row aligned contact field for improved signal integrity. Use in RCII board-to-board stacking applications and/or at the top of the board stack.

**DIMENSIONS**

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>90</td>
</tr>
<tr>
<td>120</td>
</tr>
</tbody>
</table>

**NOTE:** AirBorn can manufacture special configurations to your exact specifications.

**MATERIALS and FINISHES**

Contact Finish: BeCu per ASTM-B768 (BeCu C17410 brush alloy 174)

Contact Finish: Gold per MIL-G-45204 over nickel per IAW QQ-N-290

Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519

**PERFORMANCE**

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Rating:</td>
<td>3 amperes</td>
</tr>
<tr>
<td>Operating Temperature:</td>
<td>-65°C to +125°C</td>
</tr>
<tr>
<td>Insulation Resistance:</td>
<td>5,000 megohms minimum @ 500 VDC</td>
</tr>
<tr>
<td>Durability:</td>
<td>500 connector mating cycles</td>
</tr>
<tr>
<td>Contact Resistance:</td>
<td>3 to 5 milliohms (contact length dependent)</td>
</tr>
<tr>
<td>Contact Engagement Force:</td>
<td>4.0 oz. (113 g) max. @ 0.0246” dia. test pin</td>
</tr>
<tr>
<td>Contact Separation Force:</td>
<td>0.5 oz. (14 g) min. @ 0.0226” dia. test pin</td>
</tr>
<tr>
<td>Compliant Insertion Force:</td>
<td>22.5 lb. (10.21 Kg) max. per contact</td>
</tr>
<tr>
<td>Compliant Removal Force:</td>
<td>4.5 lb. (2.04 Kg) min. per contact</td>
</tr>
</tbody>
</table>

**NOTE:** Performance values are estimates at this time. Actual values will be determined when final product testing is complete.

**PLATING**

1 – 50 µ” Au

**VARIATION**

Blank – None

XXX – Consult factory

**CONTACT**

10 – 0.150” Long

20 – 0.270” Long

21 – 0.300” Long

22 – 0.400” Long

23 – 0.500” Long

24 – 0.600” Long

25 – 0.700” Long

26 – 0.800” Long

27 – 0.900” Long

28 – 1.000” Long

**HARDWARE**

30 – 0.195” Long (use with #10 contact)

39 – 0.370” Long (use with #20 contact)

40 – 0.400” Long (use with #21 contact)

41 – 0.500” Long (use with #22 contact)

42 – 0.600” Long (use with #23 contact)

43 – 0.800” Long (use with #24 contact)

44 – 0.900” Long (use with #25 contact)

45 – 1.000” Long (use with #26 contact)

46 – 0.700” Long (use with #27 contact)

47 – 1.100” Long (use with #28 contact)

**SERIES**

Stackable

Compliant

Full-Profile

4 Rows

0.075” Spacing

**PLATING**

1 – 50 µ” Au

**TYPE**

00 – None

**CONFIGURATION**

030 – 4 Rows/1 Bay

060 – 4 Rows/2 Bays

090 – 4 Rows/3 Bays

120 – 4 Rows/4 Bays

**CONTACT**

10 – 0.150” Long

20 – 0.270” Long

21 – 0.300” Long

22 – 0.400” Long

23 – 0.500” Long

24 – 0.700” Long

25 – 0.800” Long

26 – 0.900” Long

27 – 1.000” Long

**MATERIALS and FINISHES**

Contact Finish: BeCu per ASTM-B768 (BeCu C17410 brush alloy 174)

Contact Finish: Gold per MIL-G-45204 over nickel per IAW QQ-N-290

Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519

Hardware: Stainless steel per ASTM-A582, passivated per ASTM-A967

Guide Pin/Socket: BeCu per ASTM-B196/197, nickel-plated per QQ-N-290

**NOTE:** AirBorn can manufacture special configurations to your exact specifications.

**CONTACT**

10 – 0.150” Long

20 – 0.270” Long

21 – 0.300” Long

22 – 0.400” Long

23 – 0.500” Long

24 – 0.700” Long

25 – 0.800” Long

26 – 0.900” Long

27 – 1.000” Long

28 – 1.100” Long

**HARDWARE**

30 – 0.195” Long (use with #10 contact)

39 – 0.370” Long (use with #20 contact)

40 – 0.400” Long (use with #21 contact)

41 – 0.500” Long (use with #22 contact)

42 – 0.600” Long (use with #23 contact)

43 – 0.800” Long (use with #24 contact)

44 – 0.900” Long (use with #25 contact)

45 – 1.000” Long (use with #26 contact)

46 – 0.700” Long (use with #27 contact)

47 – 1.100” Long (use with #28 contact)

**TYPE**

00 – None

**VARIATION**

Blank – None

XXX – Consult factory

**PERFORMANCE**

Contact Rating: 3 amperes

Operating Temperature: -65°C to +125°C

Insulation Resistance: 5,000 megohms minimum @ 500 VDC

Durability: 500 connector mating cycles

Contact Resistance: 3 to 5 milliohms (contact length dependent)

Contact Engagement Force: 4.0 oz. (113 g) max. @ 0.0246” dia. test pin

Contact Separation Force: 0.5 oz. (14 g) min. @ 0.0226” dia. test pin

Compliant Insertion Force: 22.5 lb. (10.21 Kg) max. per contact

Compliant Removal Force: 4.5 lb. (2.04 Kg) min. per contact

**NOTE:** Performance values are estimates at this time. Actual values will be determined when final product testing is complete.
RCII 3-ROW DIMENSIONS

Board material: FR-4 (or equivalent) with 1.0 oz. copper
Board thickness: 0.058” minimum
Drilled hole: Ø 0.033”
Copper plating thickness: 0.0020”
Tin-lead plating thickness: 0.0005”
Finished hold diameter: Ø 0.028” (Ø 0.028” ±0.002” required)

<table>
<thead>
<tr>
<th>SIZE/BANKS</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>25/1</td>
<td>1.235</td>
<td>1.005</td>
<td>0.675</td>
</tr>
<tr>
<td>50/2</td>
<td>2.010</td>
<td>1.780</td>
<td>1.450</td>
</tr>
<tr>
<td>75/3</td>
<td>2.785</td>
<td>2.555</td>
<td>2.225</td>
</tr>
<tr>
<td>100/4</td>
<td>3.560</td>
<td>3.330</td>
<td>3.000</td>
</tr>
</tbody>
</table>
RCII 3-ROW DIMENSIONS

Hardware Options

TABLE 1

<table>
<thead>
<tr>
<th>CONTACT TERMINATION</th>
<th>CONTACT D</th>
<th>HARDWARE E</th>
</tr>
</thead>
<tbody>
<tr>
<td>201, 301</td>
<td>0.270</td>
<td>0.370</td>
</tr>
<tr>
<td>211, 311</td>
<td>0.300</td>
<td>0.400</td>
</tr>
<tr>
<td>221, 321</td>
<td>0.400</td>
<td>0.500</td>
</tr>
<tr>
<td>231, 331</td>
<td>0.500</td>
<td>0.600</td>
</tr>
<tr>
<td>241, 341</td>
<td>0.700</td>
<td>0.800</td>
</tr>
<tr>
<td>251, 351</td>
<td>0.800</td>
<td>0.900</td>
</tr>
<tr>
<td>261, 361</td>
<td>0.900</td>
<td>1.000</td>
</tr>
<tr>
<td>271, 371</td>
<td>0.600</td>
<td>0.700</td>
</tr>
<tr>
<td>281, 381</td>
<td>1.000</td>
<td>1.100</td>
</tr>
<tr>
<td>101</td>
<td>0.095</td>
<td>0.195</td>
</tr>
</tbody>
</table>

PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hold diameter: Ø 0.028" (Ø 0.028" ±0.002" required)
### RCII 3-ROW DRAWINGS

#### Board Footprint and Dimensions

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CONTACT ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>10 9 8 7 6 5 4 3 2 1 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</td>
</tr>
<tr>
<td>50</td>
<td>20 19 12 11 10 9 2 1 21 25 26 30 39 40 41 42 43 44 45 46 47</td>
</tr>
<tr>
<td>75</td>
<td>30 29 22 21 20 19 12 11 10 9 2 1 31 35 36 40 41 42 43 44 45 47 48</td>
</tr>
<tr>
<td>100</td>
<td>40 39 32 31 30 29 22 21 20 19 12 11 10 9 2 1 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63</td>
</tr>
</tbody>
</table>

#### DIMENSIONS

<table>
<thead>
<tr>
<th>SIZE/BANKS</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>30/1</td>
<td>1.235</td>
<td>1.005</td>
<td>0.675</td>
</tr>
<tr>
<td>60/2</td>
<td>2.010</td>
<td>1.780</td>
<td>1.450</td>
</tr>
<tr>
<td>90/3</td>
<td>2.785</td>
<td>2.555</td>
<td>2.225</td>
</tr>
<tr>
<td>120/4</td>
<td>3.560</td>
<td>3.330</td>
<td>3.000</td>
</tr>
</tbody>
</table>

#### PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058” minimum
- Drilled hole: Ø 0.033”
- Copper plating thickness: 0.0020”
- Tin-lead plating thickness: 0.0005”
- Finished hold diameter: Ø 0.028” (Ø 0.028” ±0.002” required)
RCII 4-ROW DIMENSIONS

PWB-PLATED THRU-HOLE RECOMMENDATIONS:

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hold diameter: Ø 0.028" (Ø 0.028" ±0.002" required)
RCII 4-ROW DIMENSIONS

Hardware Options

**TABLE 1**

<table>
<thead>
<tr>
<th>CONTACT TERMINATION</th>
<th>CONTACT D</th>
<th>HARDWARE E</th>
</tr>
</thead>
<tbody>
<tr>
<td>201, 301</td>
<td>0.270</td>
<td>0.370</td>
</tr>
<tr>
<td>211, 311</td>
<td>0.300</td>
<td>0.400</td>
</tr>
<tr>
<td>221, 321</td>
<td>0.400</td>
<td>0.500</td>
</tr>
<tr>
<td>231, 331</td>
<td>0.500</td>
<td>0.600</td>
</tr>
<tr>
<td>241, 341</td>
<td>0.700</td>
<td>0.800</td>
</tr>
<tr>
<td>251, 351</td>
<td>0.800</td>
<td>0.900</td>
</tr>
<tr>
<td>261, 361</td>
<td>0.900</td>
<td>1.000</td>
</tr>
<tr>
<td>271, 371</td>
<td>0.600</td>
<td>0.700</td>
</tr>
<tr>
<td>281, 381</td>
<td>1.000</td>
<td>1.100</td>
</tr>
<tr>
<td>101</td>
<td>0.095</td>
<td>0.195</td>
</tr>
</tbody>
</table>

**BOARD STYLE 444**

Optional insulator for top connector with termination options 301, 311, 321, 331, 341, 351, 361, 371 and 381 (with circuit test point).

**BOARD STYLE 424**

Contact/hardware option 101 (terminates circuit).

**PWB-PLATED THRU-HOLE RECOMMENDATIONS:**

- Board material: FR-4 (or equivalent) with 1.0 oz. copper
- Board thickness: 0.058" minimum
- Drilled hole: Ø 0.033"
- Copper plating thickness: 0.0020"
- Tin-lead plating thickness: 0.0005"
- Finished hold diameter: Ø 0.028" (Ø 0.028" ± 0.002" required)
### PWB-Plated Thru-Hole Recommendations:

Board material: FR-4 (or equivalent) with 1.0 oz. copper
Board thickness: 0.058” minimum
Drilled hole: Ø 0.033”
Copper plating thickness: 0.0020”
Tin-lead plating thickness: 0.0005”
Finished hold diameter: Ø 0.028” (Ø 0.028” ±0.002” required)

### RCII 4-Row Drawings

**Board Footprint and Dimensions**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CONTACT ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
</tr>
<tr>
<td></td>
<td>15 14 13 12 11 20 19 18 17 16</td>
</tr>
<tr>
<td></td>
<td>30 29 28 27 26 25 24 23 22 21</td>
</tr>
<tr>
<td>60</td>
<td>20 19</td>
</tr>
<tr>
<td></td>
<td>30 26 25 21 40 36 35 31 40 56 60 69</td>
</tr>
<tr>
<td></td>
<td>60 59 52 51 50 49 42 41</td>
</tr>
<tr>
<td>70</td>
<td>30 29 22 21 20 19 12 11 10 9 2 1</td>
</tr>
<tr>
<td></td>
<td>45 41 42 40 50 56 55 51 46 50 60 69</td>
</tr>
<tr>
<td></td>
<td>60 69 62 61 80 79 72 71 70 69</td>
</tr>
<tr>
<td>120</td>
<td>40 39 32 31 30 29 22 21 20 19 12 11 10 9 2 1</td>
</tr>
<tr>
<td></td>
<td>50 56 55 51 50 46 45 41</td>
</tr>
<tr>
<td></td>
<td>80 76 75 71 70 66 65 61</td>
</tr>
<tr>
<td></td>
<td>120 119 120 111 110 100 102 103 109</td>
</tr>
</tbody>
</table>

**Dimensions**

<table>
<thead>
<tr>
<th>SIZE/BANKS</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>30/1</td>
<td>1.235</td>
<td>1.005</td>
<td>0.675</td>
</tr>
<tr>
<td>60/2</td>
<td>2.010</td>
<td>1.780</td>
<td>1.450</td>
</tr>
<tr>
<td>90/3</td>
<td>2.785</td>
<td>2.555</td>
<td>2.225</td>
</tr>
<tr>
<td>120/4</td>
<td>3.560</td>
<td>3.330</td>
<td>3.000</td>
</tr>
</tbody>
</table>
The RZ family of high-density, board-to-board or flex circuit stacking applications is unique, offering users a reliable one-piece contact system. Its solder-less interconnect is compressed or “sandwiched” under pressure between parallel printed wiring boards or between a printed wiring board and other electronic components such as an IC or multichip module.

- 0.050” staggered grid array
- Up to 400 contacts per square inch
- BeCu contacts for reliable mating
- Standard heights from 0.100” to 0.350”
- Custom configurations available to meet your specific design needs.
Vertical Compression (Z-axis),
Open-Pin Field

Contact spacing: 0.050" (1.27 mm)
A high-density, open-field, vertically-compressed connector utilizing a patented z-axis contact system configured for between-board (board-to-board) compression applications.

Contact spacing: 0.050" (1.27 mm)

**MATERIALS and FINISHES**

Contact Finish: BeCu C17200 per ASTM B194 (brush alloy 190)
Molded Insulator: Glass-filled polyphenylene sulfide (PPS) per MIL-M-24519
Hardware: Stainless steel per ASTM A582/582M, passivated per SAE AMS-2700

**PERFORMANCE**

Contact Compression: 0.010 inches per side (nominal) for 0.100" and 0.150" connector heights; 0.015" per side (nominal) for 0.200", 0.250", 0.300" and 0.350" connector heights
Compression Force: 25-40 grams per contact having a 0.010" deflection
Contact Wipe: ≈0.007" for 0.100" and 0.150" connector heights
Approximately 0.014" for 0.200", 0.250", 0.300" and 0.350" connector heights
Current Rating: 0.5 amperes (height-dependent)
Operating Temperature: -65° C to +125° C
Insulation Resistance: 5,000 megohms minimum @ 100 VDC
Dielectric Withstanding: 250 VDC @ sea level, 100 VDC @ altitude

**NOTE:** AirBorn can manufacture special configurations to your exact specifications.

**MATED HEIGHT**

Mated height is defined as the space between the hardware clamping surfaces (top hardware surface to bottom hardware surface.) See Table 1.

**DIMENSIONS**

Sample Part Number Format: RZ250-320-115-1000

**Sample Part Number Format:**

- **RZ**
- **HEIGHT**
  - Vertical (Z-Axis) 100 – 0.100"
  - Compression 150 – 0.150"
  - Multi-Rows 200 – 0.200"
  - 0.050" Spacing 250 – 0.250"
  - Open-Field 300 – 0.300"
- **COLUMNS**
  - 10 – 10 Columns
  - 15 – 15 Columns
  - 20 – 20 Columns
  - 25 – 25 Columns
- **ROWS**
  - 2 – 2 Rows
  - 3 – 3 Rows
  - 4 – 4 Rows
  - 5 – 5 Rows
  - 6 – 6 Rows
  - 7 – 7 Rows
- **PLATING**
  - 5 – 50 µ" Au
  - 3 – 30 µ" Au
- **CONTACT**
  - 11 – Double compression
- **HARDWARE**
  - 10 – Ø .090" Thru-hole
  - 20 – Ø .050" Guide pin
- **TYPE**
  - 00 – No polarization
- **VARIATION**
  - Blank – None
  - XXX – Consult factory

**Contact Resistance:**
- 1 Diff. Insertion Loss 3.0 GHz @ -3 dB
- 2 Diff. Return Loss 1.0 GHz @ -20 dB
- 3 NEXT 2.0 GHz @ -50 dB
- 4 FEXT 2.0 GHz @ -48 dB

**NOTE:** Performance values are estimates at this time. Actual values will be determined when final product testing is complete.

**PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.**

www.airborn.com
(512) 863-5585
RZ-PNB-1E
PWB-PLATED PAD RECOMMENDATIONS:

Board to be made in accordance with ANSI/EIA-616
Laminate material per MIL-P-13949, Type GF
Copper foil thickness: 1 oz per square foot
Plate all surface features with 50 μ", minimum, electrolytic hard gold over 50-150 μ" nickel.
(Optionally, plate all surface features with 50 μ", minimum, electrolytic hard gold over 5-10 μ" of electrolytic soft gold over 100 μ", minimum, nickel.)
Thru-Hole Hardware Option

PWB-PLATED PAD RECOMMENDATIONS:

Board to be made in accordance with ANSI/EIA-616
Laminate material per MIL-P-13949, Type GF
Copper foil thickness: 1 oz per square foot
Plate all surface features with 50 µ", minimum, electrolytic hard gold over 50-150 µ" nickel.
(Optionally, plate all surface features with 50 µ", minimum, electrolytic hard gold over 5-10 µ" of electrolytic soft gold over 100 µ", minimum, nickel.)
RZ DRAWINGS

Board Footprint

<table>
<thead>
<tr>
<th>CONTACT ID</th>
<th>COLUMNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROWS</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

PWB-PLATED PAD RECOMMENDATIONS:
Board to be made in accordance with ANSI/EIA-616
Laminate material per MIL-P-13949, Type GF
Copper foil thickness: 1 oz per square foot
Plate all surface features with 50 µ", minimum, electrolytic hard gold over 50-150 µ" nickel.
(Optionally, plate all surface features with 50 µ", minimum, electrolytic hard gold over 5-10 µ" of electrolytic soft gold over 100 µ", minimum, nickel.)
The AirBorn verSI (versatile connectors with high-speed signal integrity) open-pin field product line is designed to meet the requirements for high-speed/high-density/signal integrity 100 Ω and 85 Ω differential serial bus applications while still delivering the reliability customers have come to expect from AirBorn.
VSM – Vertical (Male)

Pitch: 1.27 mm

VSM signal-integrity connectors are used in vertical, PCB-mount applications where a male interface is required. Termination styles include press-fit, paste-in-hole, plated thru-hole, and surface-mount.

Contact Rating: 2 amperes maximum

Operating Temperature: -55° C to 125° C

Min Contact Wipe: 1.27 mm (0.050”)

Contact Normal Force: 35–40 grams

Max Recommended Voltage: 200 V, RMS, 60 Hz

Insulation Resistance: 5,000 megaohms minimum @ 500 VDC

Durability: 2500 connector mating cycles

Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)

Shock: 50 g (EIA-364-27, condition E)

www.airborn.com
(512) 863-5585

Please consult the AirBorn website for the latest revision of this document prior to beginning any design work.

Pin Contacts: Phos bronze per ASTM B103 or BeCu per ASTM B768 (press-fit contact) Contact Finish: Localized gold finish per ASTM B484 over nickel per ASTM B688 Type I, 50 µIN min

Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138

Potting Compound: Frey Eng. Co. insulating compound CF3003-80

Hardware (except washers): Stainless steel per ASTM A484/A484M, ASTM A582/A582M, or ASTM A320 passivated per SAE AMS-2700, Method 1, Type 2

Washers: Stainless steel per NASM35333 (ASTM A240), passivated per NASM35333 (SAE AMS-2700)

Solder Paste: Sn63Pb37 (PN WS483) and 42Sn/57.6Bi/0.4Ag (PN ALPHA CVP-520)

Contact potting is standard.

* Consult factory for additional board spacing options.

1 Used for PC board thickness up to 0.125”

2 Used for PC board thickness 0.125” up to 0.250”

1 Surface Mount Termination only available on 4 Row vertical connectors.

No hardware supplied with blank hardware option connectors.

AirBorn can manufacture other configurations to your exact specifications. RoHS Compliant (except for termination option 10); certificate of conformance available upon request with each shipment.

FEATURES

versi board-mount connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design. Guide hardware is optional.

SI DATA – Simulated (Connectors Only)

1 Diff. Insertion Loss -0.25 dB @ 5 GHz -3dB @ 16 GHz

2 Diff. Return Loss -20 dB @ 5 GHz -6 dB @ 14 GHz

3 Diff. Impedance 100 ohm ±10% @ 50 ps rise time

4 Diff. Skew < 2 psec

MATERIALS and FINISHES

CONTACT CUSTOMER SERVICE
CALL 512-863-5585 x6400

AirBorn

AirBorn can manufacture other configurations to your exact specifications. RoHS Compliant (except for termination option 10); certificate of conformance available upon request with each shipment.

FEATURES

versi board-mount connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design. Guide hardware is optional.

SI DATA – Simulated (Connectors Only)

1 Diff. Insertion Loss -0.25 dB @ 5 GHz -3dB @ 16 GHz

2 Diff. Return Loss -20 dB @ 5 GHz -6 dB @ 14 GHz

3 Diff. Impedance 100 ohm ±10% @ 50 ps rise time

4 Diff. Skew < 2 psec

MATERIALS and FINISHES
VSF – Vertical (Female)

Pitch: 1.27 mm

VSF signal-integrity connectors are used in vertical, PCB-mount applications where a female interface is required. Termination styles include press-fit, paste-in-hole, plated thru-hole, and surface-mount.

Sample Part Number Format: VSF-04-10-50-02

SERIES
Vertical (Female)
1.27 mm

ROWS
04 – 4 Rows
05 – 5 Rows
06 – 6 Rows
08 – 8 Rows
10 – 10 Rows

COLUMNS
10 – 10 Columns
20 – 20 Columns
30 – 30 Columns
40 – 40 Columns
50 – 50 Columns

CONTACT PLATING
50 – 50 µ" Au

TERMINATION
00 – Press-fit
01 – Paste-in-hole
02 – PTH 0.078"
03 – PTH 0.109"
04 – PTH 0.140"
05 – PTH 0.156"
06 – PTH 0.172"
10 – SMT - 663PB37
11 – SMT - SN63PB37

OPTIONS
Blank – No hardware
G – Guide socket
J – Turning jackscrew
L – Locking screw
N – Fixed jacknut

NOTES
Connector potting is standard.
1 Used for PC board thickness up to 0.125"
2 Used for PC board thickness 0.125" up to 0.250"
† Surface Mount Termination only available on 4 Row vertical connectors.
‡ No hardware supplied with blank hardware option connectors.
AirBorn can manufacture other configurations to your exact specifications.
RoHS Compliant (except for termination option 10); certificate of conformance available upon request with each shipment

FEATURES
verSI board-mount connectors feature low mating force / high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design. Guide hardware is optional.

MATERIALS and FINISHES
Socket Contacts: BeCu per ASTM B194
Contact Finish: Localized gold finish per ASTM B488 over nickel per ASTM B689 Type I, 50 µin min
Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138
Potting Compound: Frey Eng. Co. insulating compound CF3003-80
Hardware (except washers): Stainless steel per ASTM A484/A484M, or ASTM A582/A582M, or ASTM A320 passivated per SAE AMS-2700, Method 1, Type 2
Washers: Stainless steel per NASM35333 (ASTM A240), passivated per NASM35333 (SAE AMS-2700)
Solder Paste: Sn63Pb37 (PN WS483) and 42Sn/57.6Bi/0.4Ag (PN ALPHA CVP-520)

PERFORMANCE
Contact Rating: 2 amperes maximum
Operating Temperature: -55°C to 125°C
Min. Contact Wipe: 1.27 mm (0.050")
Contact Normal Force: 35–40 grams
Max Recommended Voltage: 200 V, RMS, 60 Hz
Insulation Resistance: 5,000 megohms minimum @ 500 VDC
Durability: 2,500 connector mating cycles
Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)
Shock: 50 g (EIA-364-27, condition E)

www.airborn.com
(512) 863-5585
VSF-PNB-10
VRM – Vertical Rugged (Male)

Pitch: 1.27 mm

VRM signal-integrity connectors are ruggedized versions of the standard VSM male connectors. These connectors can be used in extreme environmental conditions while maintaining high reliability and continuous performance.

Guide hardware is optional.

Single-ended, differential pair, power, and ground are all available in one connector design. Four points of contact. The open-pin field design allows for flexibility in termination schemes.

**FEATURES**

verSI board-mount connectors feature low mating force / high-reliability contact system with reliability and continuous performance. These connectors can be used in extreme versions of the standard VSM male connectors.

**BOARD SPACING**

<table>
<thead>
<tr>
<th>Column</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1.275</td>
<td>0.815</td>
<td>0.010</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>0.815</td>
<td>1.275</td>
<td>0.010</td>
<td>4</td>
</tr>
<tr>
<td>30</td>
<td>1.275</td>
<td>1.275</td>
<td>0.010</td>
<td>5</td>
</tr>
<tr>
<td>40</td>
<td>2.625</td>
<td>2.625</td>
<td>0.010</td>
<td>5</td>
</tr>
<tr>
<td>50</td>
<td>3.813</td>
<td>3.813</td>
<td>0.259</td>
<td>10, 12</td>
</tr>
</tbody>
</table>

**FEATURES**

verSI board-mount connectors feature low mating force / high-reliability contact system with reliability and continuous performance. These connectors can be used in extreme versions of the standard VSM male connectors. Four points of contact. The open-pin field design allows for flexibility in termination schemes.

**CONTACT PLATING**

50 – 50 µ" Au

**PLATING**

Contacts: Electroless nickel per SAE AMS 2404, Class 3; 500 µm min

**TERMINATION**

00 – Press-fit
01 – Paste-in-hole
02 – PTH 0.078"
03 – PTH 0.109"
04 – PTH 0.140"
05 – PTH 0.158"
06 – PTH 0.172"
10 – SMT - Sn63Pb37 Solder Dipped
11† – SMT - 42Sn/57.6Bi/0.4Ag lead free, solder dipped

**OPTIONS**

Blank – No options
G – Guide pin
J – Turning jackscrew
L – Locking screw
N – Fixed jacknut
E – No Hardware/EMI gasket
GE – Guide pin/EMI gasket
GIE – Guide pin/EMI gasket
JIE – Turning jackscrew/EMI gasket
LIE – Locking screw/EMI gasket
NIE – Fixed jacknut/EMI gasket
N1E – Fixed jacknut/EMI gasket

**NOTES**

Connector potting is standard.

* Consult factory for additional board spacing options.

** Not available with 8 mm board spacing

† Used for PC board thickness to 0.125" 

‡ Used for PC board thickness 0.125" up to 0.250"

† Surface Mount Termination only available on 4 Row vertical connectors.

† No hardware supplied with blank hardware option connectors.

AirBorn can manufacture other configurations to your exact specifications.

RoHS Compliant (except for termination option 10); certificate of conformance available upon request with each shipment.

**PERFORMANCE**

Contact Rating: 2 amperes maximum
Operating Temperature: -55°C to 125°C
Min. Contact Wipe: 1.27 mm (0.050"
Contact Normal Force: 35 – 40 grams
Max Recommended Voltage: 200 V, RMS, 60 Hz
Insulation Resistance: 5,000 megohms minimum @ 500 VDC
Durability: 2,500 connector mating cycles

Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)
Shock: 50 g (EIA-364-27, condition E)

**MATERIALS and FINISHES**

Shell: Aluminum alloy 6061-T6 per SAE AMS 2402 or 6061-T651 per QQ-A-200/8

Finish: Electrocold nickel per SAE AMS 2404, Class 3; 500 µm min

Pin Contacts: Phos bronze per ASTM B103 or BiCu per ASTM B768 (press-fit contact)

Contact Finish: Localized gold finish per ASTM B489 over nickel per ASTM B689 Type I, 50 µm min

Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138

Potting Compound: Frey Eng. Co. insulating compound CF3003-80

Hardware (except washers): Stainless steel per ASTM A484/A484M, ASTM A582/A582M, or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2

Washers: Stainless steel per NASM5333 (ASTM A240), passivated per NASM5333 (SAE AMS-2700)

Solder Paste: Sn63Pb37 (PN WS483) and 42Sn/57.6Bi/0.4Ag (PN ALPHA CVP-520)

**SI DATA – Simulated (Connectors Only)**

1. Diff. Insertion Loss -0.25 dB @ 5 GHz -3dB @ 16 GHz
2. Diff. Return Loss -20 dB @ 5 GHz -6 dB @ 14 GHz
3. Diff. Impedance 100 ohm ±10% @ 50 ps rise time
4. Diff. Skew < 2 psec
**Guide hardware is optional.** Single-ended, differential pair, power, and ground are all available in one connector design—four points of contact. The open-pin field design allows for flexibility in termination schemes.

**FEATURES**

VRF signal-integrity connectors are ruggedized versions of the standard VSF female connectors. These connectors can be used in extreme environmental conditions while maintaining high reliability and continuous performance.

**PERFORMANCE**

Contact Rating: 2 amperes maximum

Operating Temperature: -55°C to 125°C

Min. Contact Wipe: 1.27 mm (0.050")

Contact Normal Force: 35–40 grams

Max Recommended Voltage: 200 V, RMS, 60 Hz

Insulation Resistance: 5,000 megohms minimum at 500 VDC

Durability: 2,500 connector mating cycles

Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)

Shock: 50 g (EIA-364-27, condition E)

**MATERIALS and FINISHES**

Shell: Aluminum alloy 6061-T6 per SAE AMS 4027 or 6061-T6511 per QQ-A-200/8

Finish: Electroless nickel per SAE AMS-2404, Class 3: 500 µm min

Socket Contact: BeCu per ASTM B194

Contact Finish: Localized gold finish per ASTM B489 over nickel per ASTM B689 Type I, 50 µm min

Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138

Potting Compound: Frey Eng. Co. insulating compound CF3003-80

Hardware (except washers): Stainless steel per ASTM A484/A484M, A582/A582M or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2

Washers: Stainless steel per NASM5333 (ASTM A240), passivated per NASM5333 (SAE AMS-2700)

EMI Gasket (GE, G1E, NE and N1E options only): Conductive Elastomer per MIL-DTL-83528 Type D

Solder Paste: Sn63Pb37 (PN WS483) and 42Sn/57.6Bi/0.4Ag (PN ALPHA CVP-520)

**NOTES**

Connector potting is standard.

1 Used for PC board thickness up to 0.125"  

2 Used for PC board thickness 0.125" up to 0.250"

Surface Mount Termination only available on 4 Row vertical connectors.

No hardware supplied with blank hardware option connectors.

AirBorn can manufacture other configurations to your exact specifications.

RoHS Compliant (except for termination option 10); certificate of conformance available upon request with each shipment.

**DIMENSIONS**

**Sample Part Number Format:** VRF-04-10-50-04-J

<table>
<thead>
<tr>
<th>SERIES</th>
<th>ROWS</th>
<th>COLUMNS</th>
<th>CONTACT PLATING</th>
<th>TERMINATION</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Rugged (Female)</td>
<td>04 – 4 Rows</td>
<td>10 – 10 Columns</td>
<td>50 – 50 μm Au</td>
<td>00 – Press-fit</td>
<td>Blank – No hardware</td>
</tr>
<tr>
<td></td>
<td>05 – 5 Rows</td>
<td>20 – 20 Columns</td>
<td></td>
<td>01 – Paste-in-hole</td>
<td>G – Guide socket</td>
</tr>
<tr>
<td></td>
<td>06 – 6 Rows</td>
<td>30 – 30 Columns</td>
<td></td>
<td>02 – PTH 0.078&quot;</td>
<td>G1 – Guide socket</td>
</tr>
<tr>
<td></td>
<td>08 – 8 Rows</td>
<td>40 – 40 Columns</td>
<td></td>
<td>03 – PTH 0.109&quot;</td>
<td>J – Turning jackscrew</td>
</tr>
<tr>
<td></td>
<td>10 – 10 Rows</td>
<td>50 – 50 Columns</td>
<td></td>
<td>04 – PTH 0.140&quot;</td>
<td>J1 – Turning jackscrew</td>
</tr>
</tbody>
</table>

**CONTACT PLATING**

00 – Press-fit  
01 – Paste-in-hole  
02 – PTH 0.078"  
03 – PTH 0.109"  
04 – PTH 0.140"  
05 – PTH 0.156"  
06 – PTH 0.172"  
101 – SMT - SN83PB37

**TERMINATION**

Solder Dipped

11 – SMT - 42Sn57.6Bi/0.4Ag lead free, solder dipped

**OPTIONS**

Blank – No hardware
G – Guide socket
G1 – Guide socket
J – Turning jackscrew
J1 – Turning jackscrew
L – Locking screw
L1 – Locking screw
N – Fixed jacknut
N1 – Fixed jacknut
E – No hardware/EMI gasket
GE – Guide socket/EMI gasket
G1E – Guide socket/EMI gasket
JE – Turning jackscrew/EMI gasket
J1E – Turning jackscrew/EMI gasket
LE – Locking screw/EMI gasket
L1E – Locking screw/EMI gasket
NE – Fixed jacknut/EMI gasket
N1E – Fixed jacknut/EMI gasket

**SI DATA – Simulated (Connectors Only)**

<table>
<thead>
<tr>
<th>1</th>
<th>Diff. Insertion Loss</th>
<th>-0.25 dB @ 5 GHz</th>
<th>-3dB @ 16 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Diff. Return Loss</td>
<td>-20 dB @ 5 GHz</td>
<td>-6 dB @ 14 GHz</td>
</tr>
<tr>
<td>3</td>
<td>Diff. Impedance</td>
<td>100 ohm ±10% @ 50 ps rise time</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diff. Skew</td>
<td>&lt; 2 psec</td>
<td></td>
</tr>
</tbody>
</table>

**www.airborn.com**

(512) 863-5585

VRF-PNB-1M

CALL 512-863-5585

x6400
VSRAM – Right Angle (Male)

Pitch: 1.27 mm

VSRAM signal-integrity connectors are used in right angle, PCB-mount applications where a male interface is required. Termination styles include press-fit, paste-in-hole or plated thru-hole.

Contact Rating: 2 amperes maximum

Operating Temperature: -55° C to 125° C

Min Contact Wipe: 1.27 mm (0.050"

Contact Normal Force: 35-40 grams

Max Recommended Voltage: 200 V, RMS, 60 Hz

Insulation Resistance: 5,000 megohms minimum @ 500 VDC

Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)

Shock: 50 g (EIA-364-27, condition E)
Guide hardware is optional. Single-ended, differential pair, power, and ground are all available in one connector design—four points of contact. The open-pin field design allows for flexibility in termination schemes.

**FEATURES**

versi board-mount connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design. Guide hardware is optional.

**MATERIALS and FINISHES**

Shell: Aluminum alloy 6061-T6 per SAE AMS 4027 or 6061-T651 per QQ-A-200/8

Finish: Electroless nickel per SAE AMS-2404, Class 3, 500 μm min

Pin Contacts (Mating Face): Phos bronze per ASTM B103

Pin Contacts (Termination): BeCu per ASTM B768 (press-fit contact) or brass alloy per ASTM B36

Contact Finish (Mating Face): Localized gold finish per ASTM B488, Type II, Code C, over nickel per ASTM B689 Type I, 50 μm min

Contact Finish (Termination Face): Localized gold finish per ASTM B488, Type II, Code C, 50 μm min over nickel per ASTM B689 Type I, 50 μm min (Press Fit) or Localized Gold per ASTM B488, Type 1, Code A or C, 10-25 μm over nickel per ASTM B689 Type I, 50 μm min (P1H or PTH)

Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTMD5138

Potting Compound: Frey Eng. Co. insulating compound CF3003-80

Hardware (except washers): Stainless steel per ASTM A464/A484M, A582/A582M, or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2

Washers: Stainless steel per NASM35333 (ASTM A240), passivated per NASM35333 (SAE AMS-2700).

**PERFORMANCE**

Contact Rating: 2 amperes maximum

Operating Temperature: -55° C to 125° C

Min. Contact Wipe: 1.27 mm (0.050")

Contact Normal Force: 35–40 grams

Max Recommended Voltage: 200 V, RMS, 60 Hz

Insulation Resistance: 5,000 megohms minimum at 500 VDC

Durability: 2,500 connector mating cycles

Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)

Shock: 50 g (EIA-364-27, condition E)

**NOTES**

1 Shells & hardware supplied uninstalled.

2 Connectors come pre-assembled with shells & hardware.

AirBorn can manufacture other configurations to your exact specifications.

RoHS Complaint; certificate of conformance available upon request with each shipment.

**SI DATA – Simulated (Connectors Only)**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Insertion Loss</td>
<td>-0.25 dB @ 5 GHz</td>
<td>-3dB @ 16 GHz</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Return Loss</td>
<td>-20 dB @ 5 GHz</td>
<td>-6 dB @ 14 GHz</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Impedance</td>
<td>100 ohm ±10% @ 50 ps rise time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diff. Skew</td>
<td>&lt; 2 psec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FEATURES**

VRRAM — Rugged Right Angle (Male)

Pitch: 1.27 mm

VRRAM signal-integrity connectors are ruggedized versions of the standard VSRAM male connectors. These connectors can be used in extreme environmental conditions while maintaining high reliability and continuous performance.

**DIMENSIONS**

**Sample Part Number Format:** VRRAM-04-10-50-02-N

<table>
<thead>
<tr>
<th>SERIES</th>
<th>ROWS</th>
<th>COLUMNS</th>
<th>CONTACT PLATING</th>
<th>TERMINATION</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rugged Right Angle (Male)</td>
<td>1.27 mm</td>
<td>10 – 10 Columns</td>
<td>50 – 50 μ&quot; Au</td>
<td>00 – Press-fit</td>
<td>Blank – Standard¹</td>
</tr>
</tbody>
</table>

**FEATURES**

versi board-mount connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design. Guide hardware is optional.

**MATERIALS and FINISHES**

Shell: Aluminum alloy 6061-T6 per SAE AMS 4027 or 6061-T651 per QQ-A-200/8 Finish: Electroless nickel per SAE AMS-2404, Class 3, 500 μm min

Pin Contacts (Mating Face): Phos bronze per ASTM B103

Pin Contacts (Termination): BeCu per ASTM B768 (press-fit contact) or brass alloy per ASTM B36

Contact Finish (Mating Face): Localized gold finish per ASTM B488, Type II, Code C, over nickel per ASTM B689 Type I, 50 μm min

Contact Finish (Termination Face): Localized gold finish per ASTM B488, Type II, Code C, 50 μm min over nickel per ASTM B689 Type I, 50 μm min (Press Fit) or Localized Gold per ASTM B488, Type 1, Code A or C, 10-25 μm over nickel per ASTM B689 Type I, 50 μm min (P1H or PTH)

Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTMD5138

Potting Compound: Frey Eng. Co. insulating compound CF3003-80

Hardware (except washers): Stainless steel per ASTM A464/A484M, A582/A582M, or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2

Washers: Stainless steel per NASM35333 (ASTM A240), passivated per NASM35333 (SAE AMS-2700).

**PERFORMANCE**

Contact Rating: 2 amperes maximum

Operating Temperature: -55° C to 125° C

Min. Contact Wipe: 1.27 mm (0.050")

Contact Normal Force: 35–40 grams

Max Recommended Voltage: 200 V, RMS, 60 Hz

Insulation Resistance: 5,000 megohms minimum at 500 VDC

Durability: 2,500 connector mating cycles

Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)

Shock: 50 g (EIA-364-27, condition E)
VSRAF – Right Angle (Female)

Pitch: 1.27 mm

VSRAF signal-integrity connectors are used in right angle, PCB-mount applications where a female interface is required. Termination styles include press-fit, paste-in-hole or plated thru-hole.

FEATURES

versi board-mount connectors feature low mating force / high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design. Guide hardware is optional.

MATERIALS and FINISHES

Socket Contact (Mating Face): BeCu per ASTM B194
Socket Contact (Termination): Brass alloy per ASTM B36 (PIH or PTH) or BeCu per ASTM B768 (press-fit contact)
Contact Finish (Mating Face): Localized gold finish per ASTM B488, Type II, Code C
Contact Finish (Termination): Localized gold finish per ASTM B488, Type II, Code C, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per ASTM B689 Type I, 50 µm min over nickel per
Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138
Potting Compound: Frey Eng. Co. insulating compound CF3003-80
Hardware (except washers): Stainless steel per ASTM A484/A484M, A582/A582M or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2
Washers: Stainless steel per NASM35333 (ASTM A240), passivated per NASM35333 (SAE AMS-2700).

NOTES

Connector potting is standard.

† No hardware supplied with blank hardware option connectors.
AirBorn can manufacture other configurations to your exact specifications.
RoHS Complaint; certificate of conformance available upon request with each shipment

PERFORMANCE

Contact Rating: 2 amperes maximum
Operating Temperature: -55°C to 125°C
Min. Contact Wipe: 100 ohm ±10% @ 50 ps rise time
Max Recommended Voltage: 200 V, RMS, 60 Hz
Insulation Resistance: 5,000 megohms minimum @ 500 VDC
Durability: 2,500 connector mating cycles
Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)
Shock: 50 g (EIA-364-27, condition E)

www.airborn.com
(512) 863-5585
VSRAF-PBN-1L
Guide hardware is optional—
four points of contact. The open-pin field design allows for flexibility in termination schemes.

**FEATURES**

- VRRAF signal-integrity connectors are ruggedized versions of the standard VSRAF female connectors. These connectors can be used in extreme environmental conditions while maintaining high reliability and continuous performance.

**NOTES**

1. Shells & hardware supplied uninstalled.
2. Connectors come pre-assembled with shells & hardware.

AirBorn can manufacture other configurations to your exact specifications.

RoHS Complaint; certificate of conformance available upon request with each shipment.

**PERFORMANCE**

- **Contact Rating:** 2 amperes maximum
- **Operating Temperature:** -55° C to 125° C
- **Min. Contact Wipe:** 1.27 mm (0.050”)
- **Max. Recommended Voltage:** 200 V, RMS, 60 Hz
- **Insulation Resistance:** 5,000 megaohms minimum @ 500 VDC
- **Contact Normal Force:** 35–40 grams
- **Shock:** 50 g (EIA-364-27, condition E)
- **Durability:** 2500 connector mating cycles

**MATERIALS and FINISHES**

- **Shell:** Aluminum alloy 6061-T6 per SAE AMS 4027 or 6061-T651 per QQ-A-200/8
- **Contact Finish (Termination):** Electroless nickel per AMS-2404, Class 3; 500 µin min; BeCu per ASTM B194
- **Contact Finish (Mating Face):** Brass alloy per ASTM B36 (PIH or PTH) or BeCu per ASTM B768 (press-fit contact)
- **Contact Finish (Mating Face):** Localized gold finish per ASTM B488, Type II, Code C, 50 µin min over nickel per ASTM B869, Type I, 50 µin min; Type II, Code C, 50 µin min over nickel per ASTM B869, Type I, 50 µin min (Press Fit) or localized gold per ASTM B488, Type 1, Code A or C, 10-25 µin over nickel per ASTM B869 Type I, 50 µin min (Press Fit) or localized gold per ASTM B488, Type I, 50 µin min (Press Fit)
- **Molded Insulators:** Glass-filled liquid crystal polymer (LCP) per ASTM D5138
- **Frey Eng. Co insulating compound CF3003-80**
- **Encapsulation Compound:** CF3003-80
- **Hardware (except washers):** Stainless steel per ASTM A484/A484M, A582/A582M or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2
- **Washers:** Stainless steel & passivated per NASM35333
- **EMI Gasket (GE and NE options only):** Conductive Elastomer per MIL-STD-83528 Type D

**DIMENSIONS**

Sample Part Number Format: VRRAF-04-10-50-00-G

<table>
<thead>
<tr>
<th>SERIES</th>
<th>ROWS</th>
<th>COLUMNS</th>
<th>CONTACT PLATING</th>
<th>TERMINATION</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRRAF</td>
<td>Rugged Right Angle (Female)</td>
<td>04 – 4 Rows</td>
<td>10 – 10 Columns</td>
<td>50 – 50 µ&quot; Au</td>
<td>00 – Press-fit</td>
</tr>
</tbody>
</table>

**SI DATA – Simulated (Connectors Only)**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Insertion Loss</td>
<td>-0.25 dB @ 5 GHz</td>
<td>-3dB @ 16 GHz</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Return Loss</td>
<td>-20 dB @ 5 GHz</td>
<td>-6 dB @ 14 GHz</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Impedance</td>
<td>100 ohm ±10% @ 50 ps rise time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diff. Skew</td>
<td>&lt; 2 psec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FEATURES**

- verSI board-mount connectors feature low mating force / high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design.
- Guide hardware is optional.

**NOTES**

- Shells & hardware supplied uninstalled.
- Connectors come pre-assembled with shells & hardware.
- AirBorn can manufacture other configurations to your exact specifications.
- RoHS Complaint; certificate of conformance available upon request with each shipment.

**MATERIALS and FINISHES**

- Shell: Aluminum alloy 6061-T6 per SAE AMS 4027 or 6061-T6511 per QQ-A-200/8
- Contact Finish (Termination): Electroless nickel per AMS-2404, Class 3; 500 µin min
- Contact Finish (Mating Face): Localized gold finish per ASTM B488, Type II, Code C, 50 µin min over nickel per ASTM B869, Type I, 50 µin min; Type II, Code C, 50 µin min over nickel per ASTM B869, Type I, 50 µin min (Press Fit) or localized gold per ASTM B488, Type 1, Code A or C, 10-25 µin over nickel per ASTM B869 Type I, 50 µin min (Press Fit) or localized gold per ASTM B488, Type I, 50 µin min (Press Fit)
- Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138
- Frey Eng. Co insulating compound CF3003-80
- Hardware (except washers): Stainless steel per ASTM A484/A484M, A582/A582M or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2
- Washers: Stainless steel & passivated per NASM35333
- EMI Gasket (GE and NE options only): Conductive Elastomer per MIL-STD-83528 Type D

**SI DATA – Simulated (Connectors Only)**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Insertion Loss</td>
<td>-0.25 dB @ 5 GHz</td>
<td>-3dB @ 16 GHz</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Return Loss</td>
<td>-20 dB @ 5 GHz</td>
<td>-6 dB @ 14 GHz</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Impedance</td>
<td>100 ohm ±10% @ 50 ps rise time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diff. Skew</td>
<td>&lt; 2 psec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FEATURES**

- verSI board-mount connectors feature low mating force / high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design.
- Guide hardware is optional.

**NOTES**

- Shells & hardware supplied uninstalled.
- Connectors come pre-assembled with shells & hardware.
- AirBorn can manufacture other configurations to your exact specifications.
- RoHS Complaint; certificate of conformance available upon request with each shipment.

**MATERIALS and FINISHES**

- Shell: Aluminum alloy 6061-T6 per SAE AMS 4027 or 6061-T6511 per QQ-A-200/8
- Contact Finish (Termination): Electroless nickel per AMS-2404, Class 3; 500 µin min
- Contact Finish (Mating Face): Localized gold finish per ASTM B488, Type II, Code C, 50 µin min over nickel per ASTM B869, Type I, 50 µin min; Type II, Code C, 50 µin min over nickel per ASTM B869, Type I, 50 µin min (Press Fit) or localized gold per ASTM B488, Type 1, Code A or C, 10-25 µin over nickel per ASTM B869 Type I, 50 µin min (Press Fit) or localized gold per ASTM B488, Type I, 50 µin min (Press Fit)
- Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138
- Frey Eng. Co insulating compound CF3003-80
- Hardware (except washers): Stainless steel per ASTM A484/A484M, A582/A582M or ASTM A320; passivated per SAE AMS-2700, Method 1, Type 2
- Washers: Stainless steel & passivated per NASM35333
- EMI Gasket (GE and NE options only): Conductive Elastomer per MIL-STD-83528 Type D

**SI DATA – Simulated (Connectors Only)**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diff. Insertion Loss</td>
<td>-0.25 dB @ 5 GHz</td>
<td>-3dB @ 16 GHz</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Diff. Return Loss</td>
<td>-20 dB @ 5 GHz</td>
<td>-6 dB @ 14 GHz</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Diff. Impedance</td>
<td>100 ohm ±10% @ 50 ps rise time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diff. Skew</td>
<td>&lt; 2 psec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VRD – Differential Pair Twinax Cable Assembly

Pitch: 1.27 mm

VRD cable assemblies are designed for twinax applications. These cable assemblies come in standard lengths but custom lengths and configurations can also be requested. Ruggedized hoods are standard.

Pitch: 1.27 mm

VRD – Differential Pair Twinax Cable Assembly

FEATURES

VerSi connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design.

NOTES

* Other cable lengths and configurations available.
AirBorn can manufacture other configurations to your exact specifications.

MATERIALS and FINISHES

- Shell: Aluminum alloy 6061-T6 per QQ-A-250/11 or 6061-T6511 per QQ-A-200/8
- Finish: Electroless nickel per SAE AMS-C-26074, Grade B, Class 3
- Socket Contact: BeCu per ASTM B194
- Pin Contacts: Phos bronze per ASTM B103
- Contact Finish: Localized gold finish per ASTM B488 over nickel per ASTM B469 Type I
- Wire: 30 AWG; 19/42 silver-plated copper
- Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138
- Hardware: Stainless steel per ASTM A562/A562M or ASTM A320; passivated per SAE AMS-2700

PERFORMANCE

- Contact Rating: 2 amperes maximum
- Operating Temperature: -55°C to 125°C
- Min. Contact Wipe: 0.0127 mm (0.005")
- Contact Normal Force: 35–40 grams
- Max Recommended Voltage: 200 V, RMS, 60 Hz
- Insulation Resistance: 100 megohms minimum @ 500 VDC
- Durability: 2500 connector mating cycles
- Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)
- Shock: 50 g (EIA-364-27, condition E)

www.airborn.com
(512) 863-5585

VRD-PNB-1H

Sample Part Number Format: VRD-04-10-50-01-03-060

FEATURES

VerSi connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design.

NOTES

* Other cable lengths and configurations available.
AirBorn can manufacture other configurations to your exact specifications.

MATERIALS and FINISHES

- Shell: Aluminum alloy 6061-T6 per QQ-A-250/11 or 6061-T6511 per QQ-A-200/8
- Finish: Electroless nickel per SAE AMS-C-26074, Grade B, Class 3
- Socket Contact: BeCu per ASTM B194
- Pin Contacts: Phos bronze per ASTM B103
- Contact Finish: Localized gold finish per ASTM B488 over nickel per ASTM B469 Type I
- Wire: 30 AWG; 19/42 silver-plated copper
- Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138
- Hardware: Stainless steel per ASTM A562/A562M or ASTM A320; passivated per SAE AMS-2700

PERFORMANCE

- Contact Rating: 2 amperes maximum
- Operating Temperature: -55°C to 125°C
- Min. Contact Wipe: 0.0127 mm (0.005")
- Contact Normal Force: 35–40 grams
- Max Recommended Voltage: 200 V, RMS, 60 Hz
- Insulation Resistance: 100 megohms minimum @ 500 VDC
- Durability: 2500 connector mating cycles
- Sinusoidal Vibration: 20 g (EIA-364-28, condition IV)
- Shock: 50 g (EIA-364-27, condition E)
VRW – Discrete Wire Cable Assembly with Internal Solder Connection

Pitch: 1.27 mm

VRW cable assemblies come in standard wire and lengths but custom wire and length options are available. Ruggedized shells are standard.

Sample Part Number Format: VRW-04-10-50-03J-01J-A030

**FEATURES**

VerSI connectors feature low mating force/high reliability contact system with four points of contact. The open pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design.

**MATERIALS and FINISHES**

Shell: Aluminum alloy 6061-T6 per QQ-A-250/11 or 6061-T6511 per QQ-A-200/8

Finish: Electroless nickel per SAE AMS-2404, Class 3; 500 µ", min.

Socket Contact: BeCu per ASTM B194

Pin Contacts: Phos bronze per ASTM B103

Contact Finish: Localized gold finish per ASTM B488 over nickel per ASTM B689 Type I

Molded Insulators: Glass-filled liquid crystal polymer (LCP) per ASTM D5138


Hardware: Stainless steel per ASTM A582/A582M or ASTM A320; passivated per SAE AMS-2700

**NOTES**

All VRW part numbers are non-RoHS-compliant.

Wire colors per M83513 are ten (10) solid colors, repeating.

Per M83513, corrosion has been experienced on connectors that are pre-wired with 22759/33 and stored in sealed environments. Caution should be exercised when using this wire.

**WIRE CODES**

<table>
<thead>
<tr>
<th>COLOR (per 83513) and GAGE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>M</td>
</tr>
<tr>
<td>B</td>
<td>FT</td>
</tr>
<tr>
<td>White</td>
<td>0.10</td>
</tr>
<tr>
<td>B</td>
<td>0.32</td>
</tr>
<tr>
<td>White</td>
<td>0.20</td>
</tr>
<tr>
<td>C</td>
<td>0.65</td>
</tr>
<tr>
<td>White</td>
<td>0.30</td>
</tr>
<tr>
<td>D</td>
<td>0.98</td>
</tr>
<tr>
<td>E</td>
<td>1.31</td>
</tr>
<tr>
<td>White</td>
<td>0.50</td>
</tr>
<tr>
<td>F</td>
<td>1.64</td>
</tr>
<tr>
<td>G</td>
<td>1.96</td>
</tr>
<tr>
<td>White</td>
<td>0.70</td>
</tr>
<tr>
<td>H</td>
<td>2.29</td>
</tr>
<tr>
<td>J</td>
<td>2.62</td>
</tr>
<tr>
<td>K</td>
<td>2.93</td>
</tr>
<tr>
<td>L</td>
<td>3.28</td>
</tr>
<tr>
<td>M</td>
<td>4.02</td>
</tr>
<tr>
<td>N</td>
<td>5.52</td>
</tr>
<tr>
<td>O</td>
<td>6.52</td>
</tr>
<tr>
<td>P</td>
<td>9.84</td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

AirBorn can manufacture special configurations to your exact specifications.

www.airborn.com
(512) 863-5585

VRW-PNB-1D
**VRW DIMENSIONS**

**Male (Connector 1)**

(Dimensional drawings shown with turning hardware)

(Dimension: A, B, C, D)

0.050 TYP

0.050 TYP

<table>
<thead>
<tr>
<th>Columns</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Rows</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1.222</td>
<td>0.813</td>
<td>0.450</td>
<td>4</td>
<td>0.470</td>
</tr>
<tr>
<td>20</td>
<td>1.722</td>
<td>1.313</td>
<td>0.950</td>
<td>5</td>
<td>0.520</td>
</tr>
<tr>
<td>30</td>
<td>2.222</td>
<td>1.813</td>
<td>1.450</td>
<td>6</td>
<td>0.570</td>
</tr>
<tr>
<td>40</td>
<td>2.722</td>
<td>2.313</td>
<td>1.950</td>
<td>8</td>
<td>0.670</td>
</tr>
<tr>
<td>50</td>
<td>3.222</td>
<td>2.813</td>
<td>2.450</td>
<td>10</td>
<td>0.770</td>
</tr>
</tbody>
</table>

Tolerances (unless otherwise specified): ±0.010"

**Female (Connector 2)**

(Dimensional drawings shown with turning hardware)

(Dimension: A, B, C, D)

0.050 TYP

0.050 TYP

<table>
<thead>
<tr>
<th>Columns</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Rows</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1.222</td>
<td>0.813</td>
<td>0.450</td>
<td>4</td>
<td>0.470</td>
</tr>
<tr>
<td>20</td>
<td>1.722</td>
<td>1.313</td>
<td>0.950</td>
<td>5</td>
<td>0.520</td>
</tr>
<tr>
<td>30</td>
<td>2.222</td>
<td>1.813</td>
<td>1.450</td>
<td>6</td>
<td>0.570</td>
</tr>
<tr>
<td>40</td>
<td>2.722</td>
<td>2.313</td>
<td>1.950</td>
<td>8</td>
<td>0.670</td>
</tr>
<tr>
<td>50</td>
<td>3.222</td>
<td>2.813</td>
<td>2.450</td>
<td>10</td>
<td>0.770</td>
</tr>
</tbody>
</table>

Tolerances (unless otherwise specified): ±0.010"

---

PLEASE CONSULT THE AIRBORN WEBSITE FOR THE LATEST REVISION OF THIS DOCUMENT PRIOR TO BEGINNING ANY DESIGN WORK.
1-TO-1 WIRE CHART FOR JUMPER ASSEMBLIES
(Table illustrates connections for a 4-row, 10-column connector)

<table>
<thead>
<tr>
<th>Connector 1</th>
<th>Connector 2</th>
<th>Connector 1</th>
<th>Connector 2</th>
<th>Connector 1</th>
<th>Connector 2</th>
<th>Connector 1</th>
<th>Connector 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 — BLK</td>
<td>A1 — BLK</td>
<td>B1 — BLK</td>
<td>B1 — BLK</td>
<td>C1 — BLK</td>
<td>C1 — BLK</td>
<td>D1 — BLK</td>
<td>D1 — BLK</td>
</tr>
<tr>
<td>A3 — RED</td>
<td>A3 — RED</td>
<td>B3 — RED</td>
<td>B3 — RED</td>
<td>C3 — RED</td>
<td>C3 — RED</td>
<td>D3 — RED</td>
<td>D3 — RED</td>
</tr>
<tr>
<td>A4 — ORN</td>
<td>A4 — ORN</td>
<td>B4 — ORN</td>
<td>B4 — ORN</td>
<td>C4 — ORN</td>
<td>C4 — ORN</td>
<td>D4 — ORN</td>
<td>D4 — ORN</td>
</tr>
<tr>
<td>A5 — YEL</td>
<td>A5 — YEL</td>
<td>B5 — YEL</td>
<td>B5 — YEL</td>
<td>C5 — YEL</td>
<td>C5 — YEL</td>
<td>D5 — YEL</td>
<td>D5 — YEL</td>
</tr>
<tr>
<td>A6 — GRN</td>
<td>A6 — GRN</td>
<td>B6 — GRN</td>
<td>B6 — GRN</td>
<td>C6 — GRN</td>
<td>C6 — GRN</td>
<td>D6 — GRN</td>
<td>D6 — GRN</td>
</tr>
<tr>
<td>A7 — BLU</td>
<td>A7 — BLU</td>
<td>B7 — BLU</td>
<td>B7 — BLU</td>
<td>C7 — BLU</td>
<td>C7 — BLU</td>
<td>D7 — BLU</td>
<td>D7 — BLU</td>
</tr>
<tr>
<td>A8 — VIO</td>
<td>A8 — VIO</td>
<td>B8 — VIO</td>
<td>B8 — VIO</td>
<td>C8 — VIO</td>
<td>C8 — VIO</td>
<td>D8 — VIO</td>
<td>D8 — VIO</td>
</tr>
<tr>
<td>A9 — GRY</td>
<td>A9 — GRY</td>
<td>B9 — GRY</td>
<td>B9 — GRY</td>
<td>C9 — GRY</td>
<td>C9 — GRY</td>
<td>D9 — GRY</td>
<td>D9 — GRY</td>
</tr>
<tr>
<td>A10 — WHT</td>
<td>A10 — WHT</td>
<td>B10 — WHT</td>
<td>B10 — WHT</td>
<td>C10 — WHT</td>
<td>C10 — WHT</td>
<td>D10 — WHT</td>
<td>D10 — WHT</td>
</tr>
</tbody>
</table>

Wire colors per M83513 are ten (10) solid colors, repeating when there are more than 10 columns.

Sample part number: VRW-04-10-30-01G-03G-A030
VSX – Flexible Circuit Jumper Assembly

Pitch: 1.27 mm

VSX flexible circuit jumpers come in standard lengths and wiring configurations, but custom specifications can be requested.

### Features

* verSI connectors feature low mating force/high-reliability contact system with four points of contact. The open-pin field design allows for flexibility in termination schemes. Single-ended, differential pair, power, and ground are all available in one connector design.

### Materials and Finishes

| Socket Contact | 50 – 50 µ″ Au BeCu per ASTM B194 |
| Pin Contacts | Phos bronze per ASTM B103 or per BeCu ASTM B768 (press-fit contact) |
| Contact Finish | Localized gold finish per ASTM B488 over nickel per ASTM B689 Type I |
| Molded Insulators | Glass-filled liquid crystal polymer (LCP) per ASTM D5138 |
| Hardware | Stainless steel per ASTM A582/A582M or ASTM A320; passivated per ASTM A967, SAE AMS-QQ-P-35 |

### Performance

| Contact Rating | 2 amperes maximum |
| Operating Temperature | -55°C to 125°C |
| Min. Contact Wipe | 1.27 mm (0.050") |
| Contact Normal Force | 35–40 grams |
| Max Recommended Voltage | 200 V, RMS, 60 Hz |
| Insulation Resistance | 5,000 megohms minimum @ 500 VDC |
| Durability | 2,500 connector mating cycles |
| Sinusoidal Vibration | 20 g (EIA-364-28, condition IV) |
| Shock | 50 g (EIA-364-27, condition E) |

### Contact Rating

| Contact Rating | 2 amperes maximum |
| Min. Contact Wipe | 1.27 mm (0.050") |
| Contact Normal Force | 35–40 grams |
| Max Recommended Voltage | 200 V, RMS, 60 Hz |
| Insulation Resistance | 5,000 megohms minimum @ 500 VDC |
| Durability | 2,500 connector mating cycles |
| Sinusoidal Vibration | 20 g (EIA-364-28, condition IV) |
| Shock | 50 g (EIA-364-27, condition E) |

### Sample Part Number Format: VSX-04-10-50-01G-03A-030

**VSX**

**-**

**-**

**-**

**-**

**-**

**-**

**-**

**SERIES**

Flexible Circuit Jumper 1.27 mm

**ROWS**

04 – 4 Rows
05 – 5 Rows
06 – 6 Rows
08 – 8 Rows
10 – 10 Rows

**COLUMNS**

10 – 10 Columns
20 – 20 Columns
30 – 30 Columns
40 – 40 Columns
50 – 50 Columns

**CONTACT PLATING**

50 – 50 µ″ Au

**CONNECTOR 1**

01A – Male; no hardware
03A – Female
01G – Male; guide pin
03G – Female; guide socket

**CONNECTOR 2**

01A – Male; no hardware
03A – Female
01G – Male; guide pin
03G – Female; guide socket

**LENGTH**

015 – 0.15 M
030 – 0.30 M
045 – 0.45 M
VERSI VERTICAL MISALIGNMENT AND ENGAGEMENT DIAGRAM

NOTICE

This document contains technical data whose export is governed by the U.S. Export Administration Regulations (EAR). Diversion contrary to U.S. law is prohibited.
In-House Engineering Services

Engineering Expertise

AirBorn’s engineering group specializes in new product design & development for OEMs across the globe. Our team of 50+ degreed engineers are the most innovative and committed working in the electronics manufacturing industry today.

Customers can leverage our design & manufacturing expertise throughout the entire product development process. From conceptual design, prototyping, pilot-runs through to mass production, our team will work to get your project completed fast, elegantly and ahead of the competition.

Our global sales presence coupled with our choice of strategic global distribution partners means greater responsiveness when procuring AirBorn’s products, no matter where you do business.
Global Interconnect Solutions for Mission-Critical Applications