

HCI® CONNECTOR SYSTEM

DESCRIPTION

The HCI® connector system anticipates the continued trend toward increased system power demands that is driving the need for increased power density. The HCI® connector system is designed to address requirements that extend beyond the capability of FCI's proven PwrBlade® connector system, the industry standard for DC power supply interfaces and power distribution.

The HCI® connector system likewise provides capability for both power and signal contacts in a single connector to enable power distribution and power control. Integrated HCI® power connector solutions, enabling DC power, AC power, and signal contacts in a single molded housing, also provide incredible flexibility to address requirements for custom configurations.

The HCI® connectors employ stamped and formed power contacts, initially pioneered by FCI with its PwrBlade system, as an innovative and cost effective alternative to expensive screw-machined contacts for high-current applications.

The touch-proof HCI® housing is designed to optimize airflow. The housing permits airflow through the connector by providing vents above the signal field as well as vents above the power contacts that permit airflow away from the mated interfaces and along the entire length of the contacts.

Available HCI® options support standard coplanar (right-angle header to right-angle receptacle) and backplane (right-angle header to vertical receptacle) form factors.



FEATURES & BENEFITS

- Integrated design with power, signal contacts and guides in a single connector housing
- Vented housings dramatically improve airflow and thermal performance while maintaining touch-proof design
- Lowest product height in the industry for a cost-effective, stamped-and-formed power connector with comparable current density
- Single short detect contact is available as an option to 'power-on' the application
- Flexible, expandable product platform permits variation in the number and placement of signal, DC and AC power contacts within the molded housing
- Integrated, industry-standard molded-in guidance system compensates for four degrees of radial misalignment for predictable cost effective blind mating
- Hard Metric mating compatibility (12.5mm from card-edge to board in the backplane)
- Options for either perpendicular or coplanar board-to-board configurations
- Press-fit termination of vertical backplane receptacle and through-hole solder termination of right-angle headers and receptacles are available to meet application requirements

TARGET MARKETS / APPLICATIONS

- Servers
- Storage
- Telecommunications
- Datacom / Networking

TECHNICAL INFORMATION

MATERIALS

- Housing: High-temperature thermoplastic (UL 94V-0), black
- Contact base metal
 - Power – high-conductivity copper alloy
 - Signals – copper alloy
- Contact finish – power and signal
 - Separable interface: 30 μin. (0.76 μm) performance-based plating per GS-12-380 product specification over nickel
 - Solder or press-fit tail area: Matte tin over nickel

ELECTRICAL PERFORMANCE

- Current rating: 85A/contact maximum for single power contact, 52A/contact maximum for 10 power contacts at 30°C T-Rise in still air
- Operating voltage rating: 250Vrms at 6mm (0.236") contact pitch
- Dielectric withstanding voltage: 1000V for signal contacts; 2500V for power contacts
- Insulation resistance: >10,000 MΩ for power contacts; >500 MΩ for signal contacts
- Contact resistance: ≤0.5 mΩ for power contact at 52A DC



PART NUMBERS

Contact Configuration	Right-Angle Header (solder termination)	Vertical Receptacle (press-fit termination)	Right-Angle Receptacle (solder termination)
1DC+4S+1DC	10077418-001LF	10077420-001LF	
1DC+24S+1DC	10079616-001LF	10079118-001LF	
2DC+24S	10079620-001LF		10079622-001LF
2DC+20S+2DC	10081146-001LF	10081148-001LF	
2DC+16S+4DC	10074864-003LF	10074866-001LF	
2DC+20S+4DC	10077316-001LF	10077318-001LF	
3DC+24S+3DC	10080586-001LF	10080588-001LF	
4DC+12S+4DC	10080655-001LF	10080657-001LF	10080907-001LF
8DC+20S	10078546-001LF	10078548-001LF	
4DC+24S+4DC	10077213-001LF	10077215-001LF	
24S+8DC+5ACP	10077688-001LF	10077690-001LF	
10DC+24S	10065864-003LF	10065127-001LF	10065866-001LF
5DC+28S+5DC	10084950-001LF	10084952-001LF	
7DC+24S+4DC	10082722-001LF		10082724-001LF
11DC+24S	10082091-003LF	10082093-001LF	
12DC+24S+12DC	10084231-001LF	10084233-001LF	
14DC+24S+14DC	10084757-001LF	10084759-001LF	
28DC+24S	10083975-001LF	10083977-001LF	

DC = DC power contacts on 6mm spacing; S = signal contact; ACP = AC power pass-thru contacts on 7.62mm spacing.

MECHANICAL PERFORMANCE

- Contact wipe distance: 3.11mm minimum for power contact; 2.67mm minimum for signal contact
- Durability: 200 cycles

SPECIFICATIONS

- Product Specification
 - GS-12-380
- Application Specification
 - GS-20-070

APPROVALS AND CERTIFICATIONS

- UL-1977, 95 Amps per contact with 10 contacts energized in still air
- CSA
- TUV

PACKAGING

- Right-angle headers: in trays
- Right-angle receptacles: in trays
- Vertical receptacles: in tubes

HCI® High Power Backplane/Midplane Connector System

DESCRIPTION

The HCI® High Power backplane/midplane connector series addresses applications demanding additional power at the interface between a daughter card and a backplane or midplane in chassis-based equipment platforms. The compact modules leverage proven, cost-effective stamped-and-formed HCI power contact technology to provide increased linear power density along the daughter card edge. In addition to conventional 1x2 and 1x3 power contact configurations, a 2-position module is available with an integrated guide between the power contacts.

HCI High Power modules are rated for up to 75A per contact without exceeding a 30°C temperature rise in still air. The modules address applications where current density requirements extend beyond those of FCI's established Hard Metric High Power Connector System.

These stand-alone modules are designed for use alongside other Hard Metric (HM) backplane/midplane connector families such as FCI's high-performance AirMax VS® and ZipLine™ connector systems or Millipacs® 2mm HM connectors. In fact, ZipLine and HCI High Power together offer the highest combination of signal and power density in the marketplace.

Individual power contacts are surrounded on four sides by molded housing walls to provide a distinct safety feature that prevents adjacent power contacts from shorting. The touch-proof housings are designed to optimize airflow around and through the connector by providing vents above and below the power contacts as well as along the rear of the housing.



FEATURES & BENEFITS

- Current rating to 75A/contact without exceeding a 30°C temperature rise in still air
- Design is compliant with the Hard Metric (HM) Equipment Practice and compatible with the ZipLine, AirMax VS and Millipacs connector series
- Connector housing does not overhang the board edge so the board-to-board spacing can be adjusted if needed
- Two- and three-position modules support backplane or midplane applications
- The two-position module with integrated center guide can eliminate the need for separate guidance
- Housing walls surround the power contacts to ensure that adjacent contacts cannot short together
- Two contact mating length options provide capability for sequentially mating power and ground contacts
- Protected backplane/midplane receptacle is UL 60950 compliant (Test Finger & Test Probe)
- Press-fit termination is available for thicker, higher-layer-count boards
- Compatible with lead-free processing temperatures

TARGET MARKETS / APPLICATIONS

- Data – servers & storage enclosures
- Telecommunications
- Datacom/Networking
- Industrial controls & instrumentation
- Medical

TECHNICAL DATA

PHYSICAL

- ▶ Housing: High-temperature thermoplastic, black
- ▶ Flammability rating: UL 94 V-0
- ▶ Contact material: High-conductivity copper alloy
- ▶ Contact finish:
 - ▶ Separable interface: 30µin (0.76µm) performance-based plating over nickel (per the GS-12-380 product specification)
 - ▶ Press-fit tail area: Matte tin over nickel

ELECTRICAL PERFORMANCE

- ▶ Current rating: 75A/contact maximum at 30°C T-rise in still air
- ▶ Operating voltage: 300V maximum
- ▶ Dielectric withstanding voltage: 2500V DC
- ▶ Insulation resistance: >10,000 MΩ minimum
- ▶ Contact resistance: <0.5 mΩ initially as well as after environmental exposure

MECHANICAL PERFORMANCE

- ▶ Mating force: 40N maximum for 2-position; 60N maximum for 3-position
- ▶ Unmating force: 13N minimum for 2-position; 19.5N minimum for 3-position
- ▶ Contact wipe distance: 3.11mm minimum
- ▶ Durability: 200 mating cycles

ENVIRONMENTAL

- ▶ Operating temperature: -65°C to + 105°C
- ▶ RoHS information, this product is compatible according to the European Union Directive 2002/95/IEC

REFERENCE DATA

- ▶ Product Specification: GS-12-380
- ▶ Application Specification: GS-20-070

CERTIFICATIONS & APPROVALS

- ▶ UL-95A per contact in still air
- ▶ CSA
- ▶ TUV

PACKAGING

- ▶ Right angle headers: Tubes
- ▶ Vertical receptacles: Tubes

PART NUMBERS

1x2 Right Angle Header w/o Integrated Guide	10078770-001LF
1x2 Vertical Receptacle w/o Integrated Guide	10078768-001LF
1x2 Right Angle Header w/ Integrated Guide	10087937-001LF
1x2 Vertical Receptacle w/ Integrated Guide	10087939-001LF
1x3 Right Angle Header	10078904-001LF
1x3 Vertical Receptacle	10078902-001LF

Note: For right angle headers with one first mate/last break contact, please use the -002LF dash number option per the applicable product drawing.

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