

# PWRBLADE® CONNECTOR SYSTEM

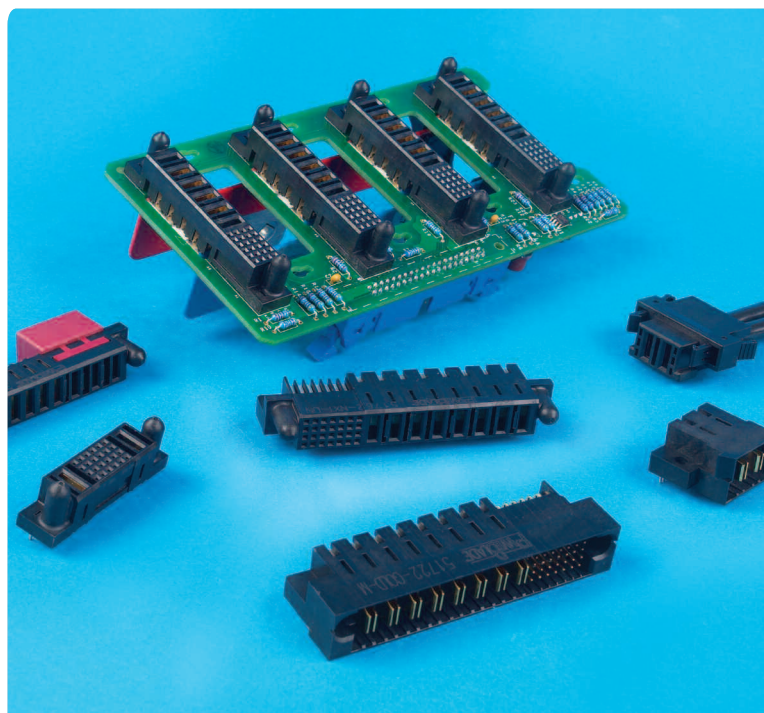
## DESCRIPTION

The PwrBlade® power distribution connector system from FCI includes power and signal contacts to provide power distribution and power control in a single connector. Options for either vertical or right-angle versions of PCB-mount headers and receptacles deliver support for coplanar, backplane or mezzanine connections. The connectors are ideal for robust power connections to embedded AC/DC power supplies or for board-to-board connections in servers, storage enclosures and communications equipment.

Initially developed to enable the implementation of Server System Infrastructure (SSI) Standards for Distributed Power Supplies (DPS), Mid-range Power Supplies (MPS) and High-end Power Supplies (HPS), PwrBlade® connectors are also available in wide variety of other configurations with either solder or press-fit board termination. The connectors can also be customized to address unique application requirements.

PwrBlade® connectors can be provided with one to 20 power contacts and zero to 148 signal contacts. Individual power contacts are rated at 48A current-carrying capacity; connector configurations with multiple power contacts are rated at 30A per power contact as tested for 30°C temperature rise in still air. An available cable port option provides segregated AC contacts for cable pass-through applications.

Capability for two levels of sequential mating for power contacts and two levels for signal contacts can support up to three levels of sequencing of power and signals. Sequential mating of ground, followed by power and signals can be used to provide “hot swap” capability. Molded guide posts on the header engage with the corresponding receptacle connector to assure alignment during blind-mating.



## FEATURES & BENEFITS

- Provides contacts for power distribution and power control
- Robust 0.100" (2.54mm) pitch for signal contacts and 0.200", 0.250", or 0.300" spacing for power contacts
- Rugged blind-mate design
- 48A/individual power contact; 30A/contact for 10 contacts at 30°C rise in still air
- 60A per UL test guidelines
- Capability for up to 20 power contacts and 148 signal contacts in up to 8 inches
- Up to 3 levels of sequential contact: 2 for power and 2 for signals
- Options for solder or press-fit termination of PCB-mount connectors
- Board retention devices provided to secure connectors during processing
- AC cable port option (cable pass-through)
- PwrBlade® cable assemblies extend application range

## TARGET MARKETS

- Data
- Telecommunications
- Datacom/Networking

## APPLICATIONS

- Power supplies
- Servers
- Storage enclosures
- Communications equipment

## MATERIALS

- Housing
  - Glass-filled high temperature nylon
  - Color: Black
- Contacts
  - Power contacts: Copper based alloy
  - Signal pins: Phosphor-bronze
  - Signal contacts: Copper based alloy
- Plating
  - All contacts: 0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel

## ELECTRICAL PERFORMANCE

- Insulation Resistance
  - Power contact: 10,000 MΩ
  - Signal contact: 500 MΩ
- Withstanding Voltage
  - Power contact: 2,500V DC
  - Signal contact: 1,000V DC
- Current rating: 48A for single powered contact; de-rated to 30A for 10 powered contacts at 30°C temperature rise with zero airflow
- Current rating: 60A for 10 contacts when tested to UL guidelines.
- LLCR: <20 mΩ

## MECHANICAL PERFORMANCE

- Mating force:
  - 6.95 N (25 ozf) per Power contact
  - 0.97 N (3.5 ozf) per Signal contact

## TECHNICAL DOCUMENTS

- Product Specification: GS-12-149
- Application Specification: BUS-20-067
- PwrBlade® Worksheets for custom design or layout
  - 51696 – Vertical header
  - 51697 – R/A header
  - 51698 – Vertical receptacle
  - 51699 – R/A receptacleContact your local FCI representative to obtain these worksheets.

## TOOLING

- For Press Fit tooling contact your local FCI Sales Representative

## CERTIFICATIONS & APPROVALS

- UL, CSA and TUV approved

## PACKAGING

- Trays

**PwrBLADE®**  
Power Distribution Connector System

Use web link [www.fciconnect.com/pwrblade](http://www.fciconnect.com/pwrblade) to obtain product drawings and additional technical information.

## PART NUMBERS

### SERVER SYSTEM INFRASTRUCTURE (SSI STANDARD)

#### Distributed Power Supply (1 Power + 24 Signal + 1 Power Configuration)

Server	Tin/Lead	Lead-Free
Right Angle Receptacle	51416-001	51416-001LF
Vertical Press-Fit Receptacle	51666-001	51666-001LF
<b>Power Supply</b>		
Right Angle Header	51415-001	51415-001LF
Vertical Header	51952-001	51952-001LF
Vertical Press-Fit Header	51952-002	51952-002LF

#### High-End Power Supply (12 Power + 24 Signal Configuration)

Server	Tin/Lead	Lead-Free
Vertical Receptacle	51261-XX001	51261-XX001LF
Vertical Press-Fit Receptacle	51617-XX002	51617-XX002LF
<b>Power Supply</b>		
Right Angle Header	51219-XX002	51219-XX002LF

#### Mid-Range Power Supply (6 Power + 24 Signal + 5 Power Configuration)

Server	Tin/Lead	Lead-Free
Right Angle Receptacle	51625-XX001	51625-XX001LF
Vertical Press-Fit Receptacle	51667-XX001	51667-XX001LF
<b>Power Supply</b>		
Right Angle Header	51624-XX001	51624-XX001LF
Vertical Header	51860-001	51860-001LF
Vertical Press-Fit Header	51860-002	51860-002LF

### AC CABLE PORT RIGHT ANGLE RECEPTACLE

Power+Signal+Power+Cable	51894-YYY	51894-YYYLF
Power+Cable	51919-YYY	51919-YYYLF
Signal+Power+Cable	51921-YYY	51921-YYYLF
Power+Signal+Cable	51923-YYY	51923-YYYLF

### AC CABLE PORT VERTICAL RECEPTACLE

Power+Signal+Power+Cable	51897-YYY	51897-YYYLF
Power+Cable	51925-YYY	51897-YYYLF
Signal+Power+Cable	51927-YYY	51927-YYYLF
Power+Signal+Cable	51929-YYY	51929-YYYLF

Note: The XX and YYY utilized in the part numbers above are placeholders for certain product specific criteria. Reference the product drawings to obtain detailed dimensions and complete part numbers. Use web link [www.fciconnect.com/pwrblade](http://www.fciconnect.com/pwrblade) to obtain product drawings and additional technical information.

For non-SSI applications other configurations are available upon request.

## PWRBLADE® I/O CABLE ASSEMBLIES

### DESCRIPTION

The PwrBlade® I/O product family is designed to connect with right-angle or vertical board-mounted headers. By using PwrBlade® cable assemblies, designers can now connect power supplies and power distribution subassemblies in an even wider range of applications. The combination of cable connection capability and FCI's proven PwrBlade® board-to-board system provides a universal power distribution connector system.

FCI's PwrBlade® I/O cable assemblies are available in squeeze-to-release form factors for applications that require active latching or in panel-mount configurations for modular installation of large power distribution systems.



PwrBlade® squeeze-to-release cable retention system

### FEATURES & BENEFITS

- Options for panel-mount or squeeze-to-release configurations
- Robust 0.100" (2.54mm) pitch for signal contacts
- 0.250" or 0.300" spacing for power contacts
- Rugged blind-mate connector system
- Flexible crimp-to-wire Power contacts accommodate 8, 10, 12 and 14 AWG wire
- Flexible crimp-to-wire Signal contacts accommodate 22, 24, and 26 AWG wire.
- Modular product design and manufacturing process allow product flexibility
- RoHS compliant design meets current environmental standards



PwrBlade® panel-mount configurations

Use web link [www.fciconnect.com/cableassembly](http://www.fciconnect.com/cableassembly) to obtain the PwrBlade® Cable Assembly Configurator.