

# MILLIPACS® 2mm HARD METRIC SERIES – VERTICAL HEADER CONNECTORS

## OVERVIEW

Millipacs® is a 2mm modular, Board-To-Board and Cable-To-Board Interconnection system in Hard Metric (HM) configuration designed in accordance with IEC 917, IEC 61076-4-101 and Telcordia GR-1217-CORE standards.

2mm HM connector is one of the most popular backplane connector system. Millipacs® series offers attractive propositions for all market segments due to the cost effectiveness, user flexibility, standardization and availability of its broad range. Millipacs® connector system is extensively used for chassis-based packaging in the communications, data, medical and industrial & instrumentation segments.

Millipacs® series HM vertical headers are offered in standard signal modules of 5 and 8 rows. 5 row modules are available up to maximum of 125 signal contacts and 8 row modules are available up to maximum of 200 signal contacts per 50 mm length. Besides signal module, hybrid modules are available with signal pins, power and coax contacts. Vertical header mates with right angle receptacle, vertical receptacle and cable connector via shroud.



## FEATURES

- Hard Metric
  - 2mm pitch
- 
- Modular and Scalable by 25mm to 50mm
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- Three levels of mating contact lengths and different terminal lengths.
  - Multipurpose center, Coding feature, Guiding feature and location peg
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- SI performance
  - Mating compatibility with Millipacs® high speed (HS) Right Angle Receptacle
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- Different length contacts at any position
- 
- Hybrid connectors with signal, power and coaxial contacts
- 
- Two outer rows

## BENEFITS

- Popular equipment practice standard. Millipacs® co-exists with all HM compatible connectors and accessories
  - Adequate spacing for routing PCB traces and thereby optimizing board layers, Reduces PCB real estate Vs 2.54mm
- 
- Standard Modular length, without any loss of position
- 
- Suitable for various applications with different PCB thickness, Rear plug up applications, hot swapping
  - Easy guiding and visual identification. Prevents wrong mating
- 
- Suitable pinning assignment for data rate up to 3Gbps.
  - Enables data rate suitability up to 10Gbps – cost-effective transition to higher speed retaining the current backplane architecture and connectors
- 
- Custom loading
- 
- Enables versatile circuit design
- 
- Optional shielding



## TECHNICAL INFORMATION

### MATERIALS

- Insulator material: Thermoplastic UL94V0 for standard press-fit and High-Temperature polymer for Pin-in-paste terminations
- Contact material: Copper Alloy
- Contact plating material: Gold / Palladium nickel on mating area and Tin over Nickel on press-fit/ pin-in-paste terminal area

### ELECTRICAL PERFORMANCES

- Operating current: 1.5 A at 20°C  
: 1.0 A at 70°C
- Test voltage: 750 Vrms
- Contact resistance: 20 mΩ max
- Insulation resistance: 10<sup>4</sup> MΩ min

### MECHANICAL PERFORMANCE

- Mating force: 0.75 N max per contact pair
- Withdrawal force: 0.15 N min per contact pair
- Hertz stress: 200 Kpsi min
- Misalignment: Longitudinal ± 2.0mm  
Transversal ± 2.5mm
- Inclination: ±2.0°

### SPECIFICATIONS

- Product specification: GS-12-203
- Application specification: GS-20-034

### ENVIRONMENTAL

- Operating temperature: -55°C to +125°C

### APPROVALS AND CERTIFICATIONS

- Designed in accordance with IEC 917 and IEC 61076-4-101
- Fits DIN 43356 and IEEE 1301 Hard Metric Practice
- Telcordia GR-1217-CORE standards
- UL and CSA recognized

### PACKAGING

- Tray Packaging for standard versions.
- Tape and reel packaging for Pin-in-paste versions

### TARGET MARKETS/APPLICATIONS

- Communications
  - IP, Internet backbone driving high bandwidth requirements
  - LAN / WAN interfaces & data over public networks
  - Core Switches
  - Routers
  - Hubs
  - Base Station
  - Wireless Base Station
  - Transmission Access Systems
- Data
  - Servers
  - Storage units
- Industrial & Instrumentation
  - Data Acquisition systems for Test & Measurements
  - Railway Traffic Management & Control Systems
  - Control Systems for Process
  - Energy & Power Industries
  - In-flight Entertainment & Communication for Avionics
  - Digital Image Processing
  - Multimedia
  - Signage
  - Video Surveillance
  - Radar
  - Sonar System
  - UAV
- Medical
  - MRI Scanners
  - Diagnostic Equipment

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SERIES– VERTICAL HEADER CONNECTORS**

## PART NUMBERS

| No. of signal rows | Type | Features   | Header series | Max. No. of signal pins | Mounting style |
|--------------------|------|--|---------------|-------------------------|----------------|
| 5                  | A    | 22 column, 50mm + MPC+ location peg                          | HM2P07P       | 110                     | Press-fit      |
|                    | A    | 22 column, 50mm +MPC + Guide pin option + location peg       | HM2P29P       | 110                     | Press-fit      |
|                    | A    | 12 column, 30mm + MPC + location peg                         | HM2P27P       | 60                      | Press-fit      |
|                    | A    | 22 column, 50mm + MPC  | HM2P40P       | 110                     | Press-fit      |
|                    | B    | 25 column, 50mm  | HM2P08P       | 125                     | Press-fit      |
|                    | B22  | 22 column, 44mm  | HM2P70P       | 110                     | Press-fit      |
|                    | B19  | 19 column, 38mm  | HM2P71P       | 95                      | Press-fit      |
|                    | AB   | 25 column, 50mm + polarization on housing walls              | HM2P65P       | 125                     | Press-fit      |
|                    | AB22 | 22 column, 44mm + polarization on housing walls              | HM2P66P       | 110                     | Press-fit      |
|                    | AB19 | 19 column, 38mm + polarization on housing walls              | HM2P67P       | 95                      | Press-fit      |
|                    | C    | 11 column, 25mm + end polarization + location peg            | HM2P09P       | 55                      | Press-fit      |
|                    | CR   | 11 column, 25mm + reversed + end polarization + location peg | HM2P80P       | 55                      | Press-fit      |
|                    | L    | 50mm, 6 power/coax + MPC                                     | HM2A30P       | 6 Spl.                  | Press-fit      |
|                    | M    | 50mm, 55 signal + 3 power/coax + MPC                         | HM2P11P       | 3 Spl. + 55             | Press-fit      |
|                    | N    | 25 mm, 3 power/coax + end polarization                       | HM2A32P       | 3 Spl.                  | Press-fit      |
| 8                  | D    | 22 column, 50mm + MPC + guide pin option + location peg      | HM2P87P       | 176                     | Press-fit      |
|                    | DE   | 25 column, 50mm + polarization on walls                      | HM2P95P       | 200                     | Press-fit      |
|                    | E    | 25 column, 50mm  | HM2P88P       | 200                     | Press-fit      |
|                    | F    | 11 column, 25mm + end polarization + location peg            | HM2P89P       | 88                      | Press-fit      |
| 5                  | A    | 22 column, 50 mm + MPC                                       | HM2P40S       | 110                     | Pin-in-paste   |
|                    | C    | 11 column, 25mm + end polarization + location peg            | HM2P09S       | 55                      | Pin-in-paste   |
|                    | M    | 50 mm, 55 signal + 3 power/coax + MPC                        | HM2P11S       | 3 Spl. + 55             | Pin-in-paste   |

\* MPC – Multi purpose center for polarization and coding

\* Application tooling are available on request

\* Compact PCI Connectors are available for Types A, B22, B19, AB22, and AB19

\* Performance levels: 3 – 50 mating cycles;  
2 – 250 mating cycles;  
1 – 500 mating cycles.

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