

hm 2.0 – Hard Metric Connectors

High Contact Density The hm 2.0 series of hard metric connectors was developed in accordance with the international IEC 61076-4-101 standard. These shielded connectors have a pitch of 2 mm and are suitable for applications that require high contact density and reliability. The connector system is rather popular in the area of backplane. Standardization ensures that the connectors are compatible with products from different manufacturers.

Features

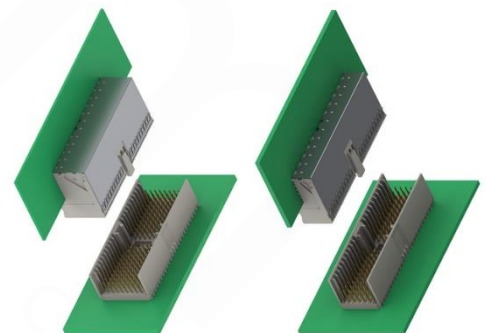
- Wide selection of types
- Modular connectors with a pitch of 2 mm
- Five or eight signal rows
- Twelve different pin lengths
- Customized assembly layout as an option
- Available with or without shielding
- Supports data transfer rates of up to 3.125 Gbps
- Robust design
- Accessories such as shrouds and coding keys

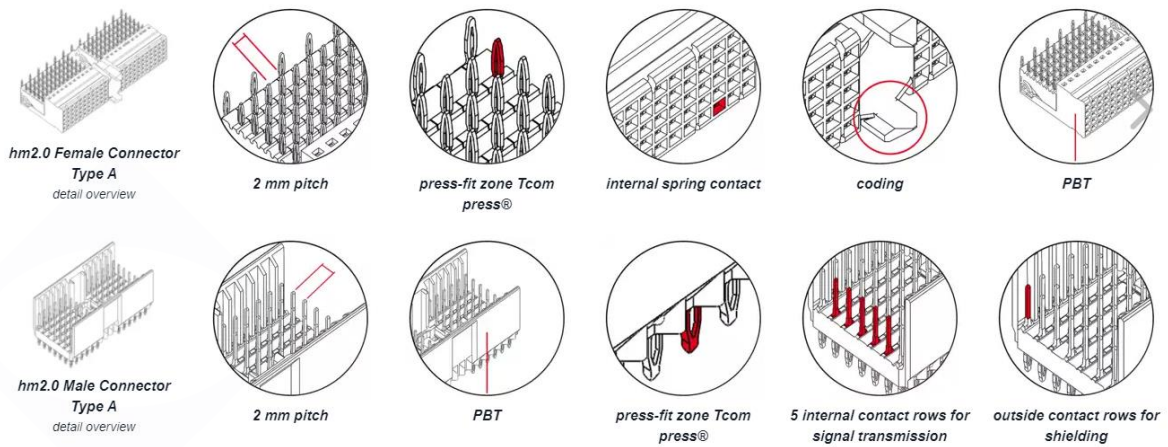


Applications

- Telecom
- Network systems
- CompactPCI
- Medical technology
- Industrial computers (IPC)

hm 2.0 connectors are used in CompactPCI, a PICMG standard for high-end systems in 19-inch technology with passive backplanes. They are suitable for strict standards as regards performance, robustness, and reliability due to their robust design and data transfer rates of up to 3.125 Gbps. hm 2.0 connectors are increasingly used in industrial applications as well, because of their robust connector system and high contact density with a pitch of 2 mm. The connectors are available with five or eight signal rows and 12 different pin lengths.





The IEC 61076-4-101 standard:

The hm 2.0 series of hard metric connectors from ept was developed and manufactured in accordance with the international IEC 61076-4-101 standard. This provides users with a global standard for the connection of printed circuit boards by means of multi-pin connectors. Printed circuit boards can be easily exchanged from system to system. Important parameters such as fixation, shielding, and coding remain compatible beyond the application.

hm 2.0 connectors from ept are designed with a pitch of 2 mm. These connectors can easily be lined up without interrupting the 2 mm pitch at the interfaces. This arrangement offers advantages especially in the design of the printed circuit board, as there is no loss of space within individual connector modules.

Modules A, D, L, and M are equipped with a multi-purpose block. This accommodates the coding keys provided in accordance with the standard. The molded guides ensure proper orientation of the male and female connectors to each other as well as anti-twist protection before contact is made. The coding keys are connected and released again using a simple plug and pull tool.

ept offers four different lengths for the hm 2.0 male connectors for the connection side and three lengths for the mating side. The different termination lengths are necessary to connect/disconnect certain signal or ground lines first when plugging or unplugging assemblies. The long 11.25-mm connections are mainly needed for the shield rows z and f.

The insulator materials are fitted with chamfers at the ends for better



orientation and to prevent the connectors from twisting. These chamfers ensure precise positioning on the circuit board and provide the modules the necessary retention force.

Coding of the connectors is essential in a modern bus system to prevent confusion with the circuit boards. The possibility of coding is already specified in IEC 61076-4-101. Coding keys can be manually engaged in the multi-purpose block of connector types A, D, L, and M. The various keys are color-coded, enabling quick visual identification.

hm 2.0 System Modularity

ept hm 2.0 modules offer a number of possibilities to optimize high contact densities, especially in combination with coaxial or fiber optic connections.

It is possible to establish connections of 50 mm, in length using the type A module, in stages of 25 mm up to any total length.

It is generally best to arrange the connectors with a multi-purpose block (types A, M, L) at the beginning of a connector row. The type B module is placed between other modules only.

The 25-mm modules of type C and N are placed at the end of a connector row because of their reverse polarity protection. Correct plugging of modules is ensured by the coding keys in the multi-purpose block and by the type C and N modules.

hm 2.0 for Highspeed Applications

It is possible to realize high-speed applications with hm 2.0 connectors from ept. It was possible to attain data transfer rates of up to 3.125 Gbps under the framework conditions described below.

- Two hm 2.0 connector pairs from ept
- Two standard FR4 PCBs at a thickness of 1.6 mm and a strip line length of 115 mm
- One standard FR4 backplane at a thickness of 4.4 mm and a strip line length of 400 mm
- Special attention is paid to connection interruptions, the stub effect, the skin effect, and dielectric losses in the application design

We would be happy to provide you with more details and the corresponding technical literature on highspeed applications using hm 2.0 connectors.