

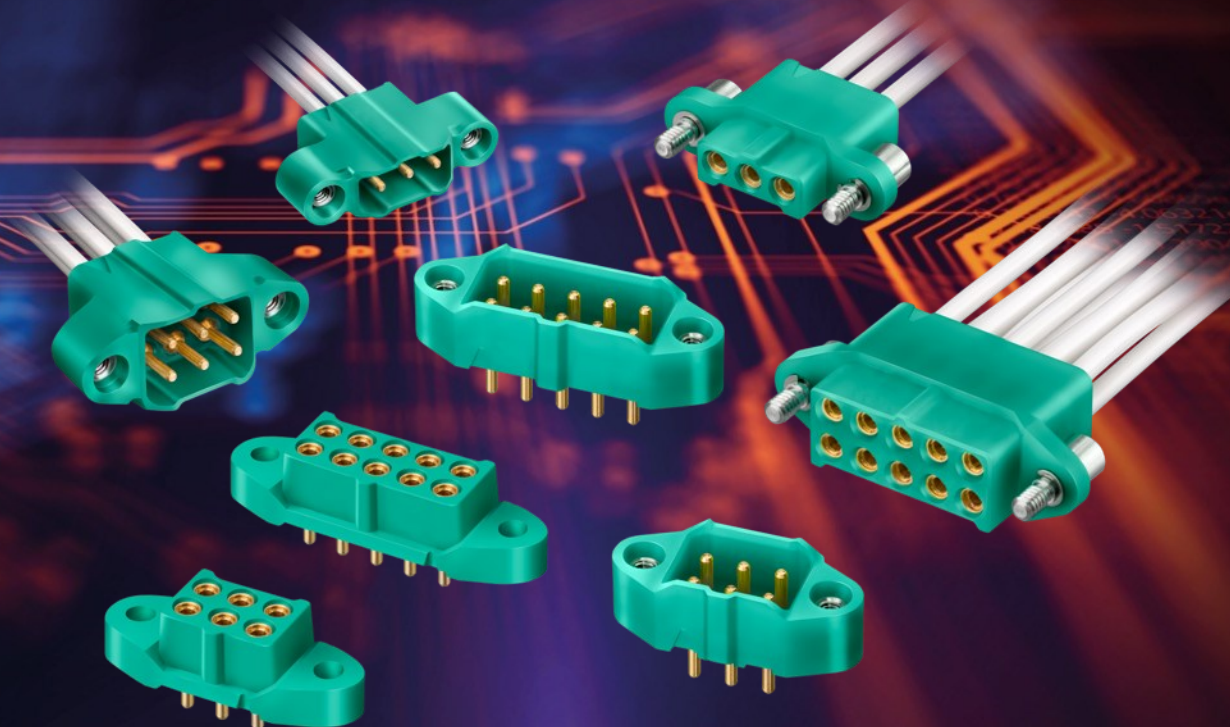
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HARWIN

M300



M300 High-Reliability Connectors

POWER GAP IN HIGH REL CONNECTORS



Demand for a power connector system exists in a number of high-reliability markets that require durability, high performance and extreme temperature tolerance in the 5-10Amp range.

M300 High-Reliability Connectors

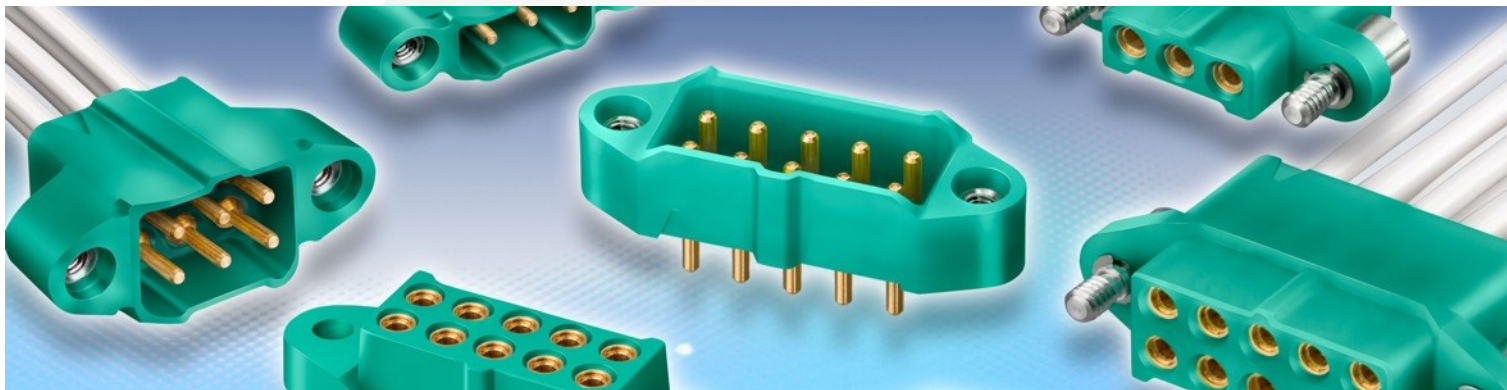
THE HEART OF THE CONNECTOR SYSTEM



A 4-fingered Beryllium Copper female contact gives superb performance, for both electrical and mechanical specifications. The contact clip and shell are both gold plated for multiple insertions and high corrosion resistance.

M300 High-Reliability Connectors

WHAT ARE THE VARIANTS?

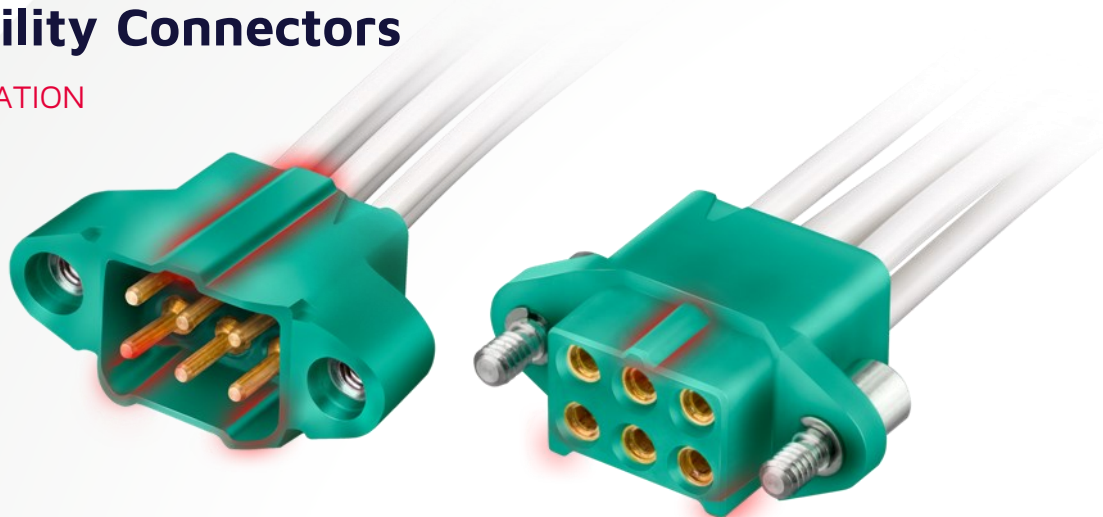


Currently [the M300 range](#) covers:

- Male Vertical in PC Throughboard Tail;
- Female Vertical in PC Throughboard Tail;
- Male and Female single-ended Cable Assemblies – ready-made for immediate use;
- Male and Female Crimp – available as separate crimps and housings for you to create your own cable assembly.

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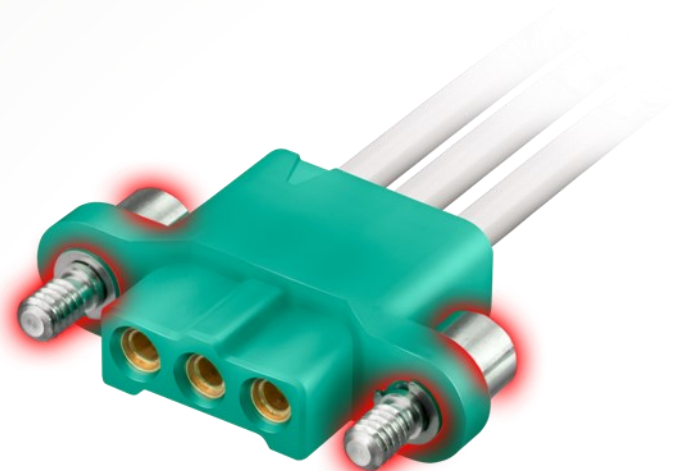
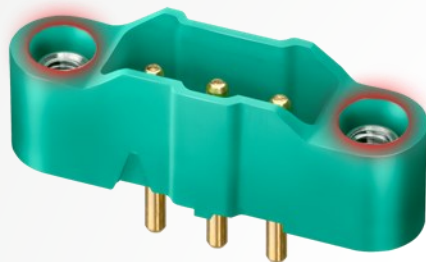
FEATURES – KEYWAY POLARIZATION



The polarization has been placed on both sides of the connector, to ensure that these connectors cannot be mated inversely. Three polarization keyways have been included in the design, on two corners and in one side.

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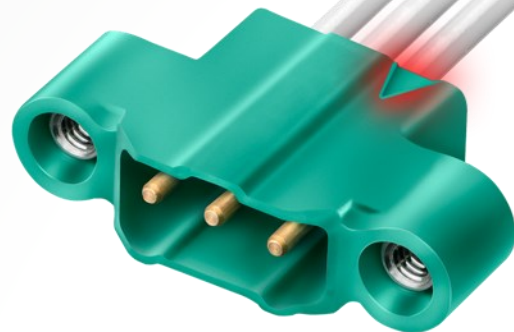
FEATURES – JACKSCREWS FOR CONNECTION SECURITY



Female crimp connectors are fitted with floating Hex Socket jackscrews, suitable for 2mm Hex (Allen) keys. These will engage with jackscrews assembled in both Male PC Tail and Male Crimp connectors.

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FEATURES – NO. 1 POSITION IDENTIFIED



All male and female connector bodies carry a triangular -shaped inset in the housing, to indicate the position of the Number 1 contact. Counting is then continued along the row. For Double row connectors, the numbering restarts on the second row from the contact beside position 1, and continues along the row as before.

M300 High-Reliability Connectors

FEATURES – CABLING SIZES

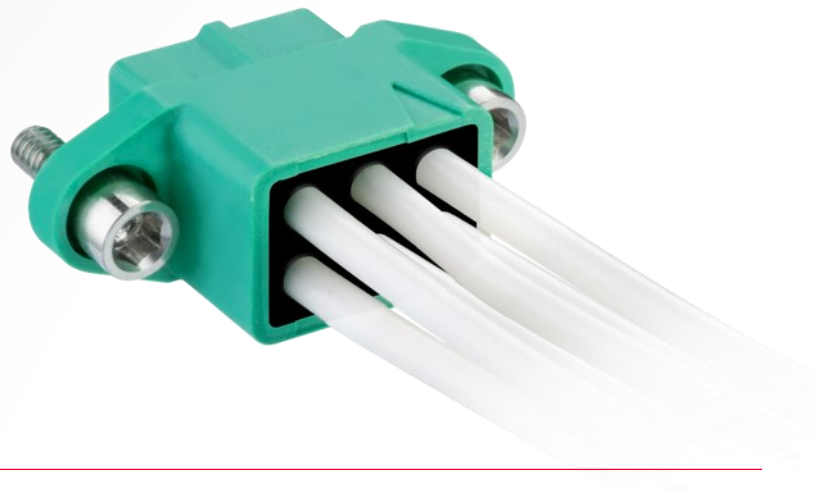


Both Male and Female cable connectors are designed to suit 18AWG to 22AWG equipment wires, with a maximum external diameter of $\text{\O}1.8\text{mm}$ for 18-20AWG, and $\text{\O}1.4\text{mm}$ max for 22AWG.

Wire specification M22759/11 (PTFE) is used on the off-the-shelf cable assemblies – other suitable wire types include BS 3G 210 Type A and MIL-16878E Type E.

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FEATURES – POTTING WALL



The crimp housings feature a potting wall to keep potting fluids retained during application. The use of potting improves the retention of the crimp contacts in the housing by adding strain relief. The ready-made cable assemblies come with backpotting in place.

M300 High-Reliability Connectors

ACCESSORIES – HAND TOOLING



All the hand tools required to use these connectors are available from Harwin:

- Hand Crimp tool [M22520/2-01](#), and Positioner [Z80-058](#) (both are required for correct crimping);
- Insertion/Removal Tool [Z300-902](#) (for correctly inserting or removing the crimped contacts into a housing);

A video is available on the Harwin website for Datamate [Crimping](#), which uses the same methodology.

M300 High-Reliability Connectors

PERFORMANCE – ELECTRICAL SPECIFICATIONS

Current Rating	10A	EIA-364-70A
Contact Resistance	6m Ω Max	EIA-364-23B
Insulation Resistance	100M Ω min at 100V DC	EIA-364-21C

The high reliability design of the M300 connector means achieving the full 10A current rating with the compact pitch of just 3mm. Other performance ratings are comparable to the rest of the High-Reliability connectors available from Harwin.

10A is achievable using the 18AWG wire (or board-to-board) – the smaller wire sizes are not recommended for this current rating.



M300 High-Reliability Connectors

PERFORMANCE – ENVIRONMENTAL SPECIFICATIONS

Temperature Range	-65°C to +175°C	EIA-364-32C
Environmental Classification	65/175-56 days at 90% RH	EIA-364-31B

With the modern choices of insulator materials, the temperature range is a significant improvement over existing high-reliability connectors, achieving up to 175 degrees C as a continuous working environment.



M300 High-Reliability Connectors

PERFORMANCE – MECHANICAL SPECIFICATIONS

Durability	1,000 operations	EIA-364-09C
Vibration	10g No Discontinuity >1 μ s	EIA-364-28
Shock	100g 6ms, No Discontinuity >1 μ s	EIA-364-27

Mechanical vibration and shock are again comparable to existing high-reliability connectors. The full [Connector Specification](#) and [Test Report](#) is available for these performance specifications.

M300 High-Reliability Connectors

LEGISLATION – ENVIRONMENTALLY FRIENDLY MATERIAL



The materials used in the M300 connectors do not contain any Lead, Brominated Flame Retardants, Red Phosphor (PFOS/PFOA) or Antimony. They are fully RoHS Compatible and contain no REACH SVHCs.

M300 High-Reliability Connectors

OUTGASSING



The Nylon 4T plastic used in the construction of M300 housings has a low outgassing index. Details can be found on the [Harwin Outgassing support article](#).

M300 High-Reliability Connectors

MARKETS



Many markets have a requirement for rugged, high-reliability connectors, with the additional requirement for a compact size to deliver a power current. Built to the same exacting standards as our Datamate range, M300 delivers in these industries:

- Robotics
- Aviation
- UAVs
- Field Comms
- Oil & Gas



M300 High-Reliability Connectors



-
- Powerful
 - Rugged
 - Defies Extreme Heat

Learn more about our other ranges



HIGH RELIABILITY
WITH SUPREME
PERFORMANCE



INNOVATIVE
DESIGNS FOR
EASY ASSEMBLY



DEPENDABLE
CONNECTIVITY
ACROSS THE BOARD

Find out more about our full range
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CAD Models and Evaluation Samples also available at www.harwin.com



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