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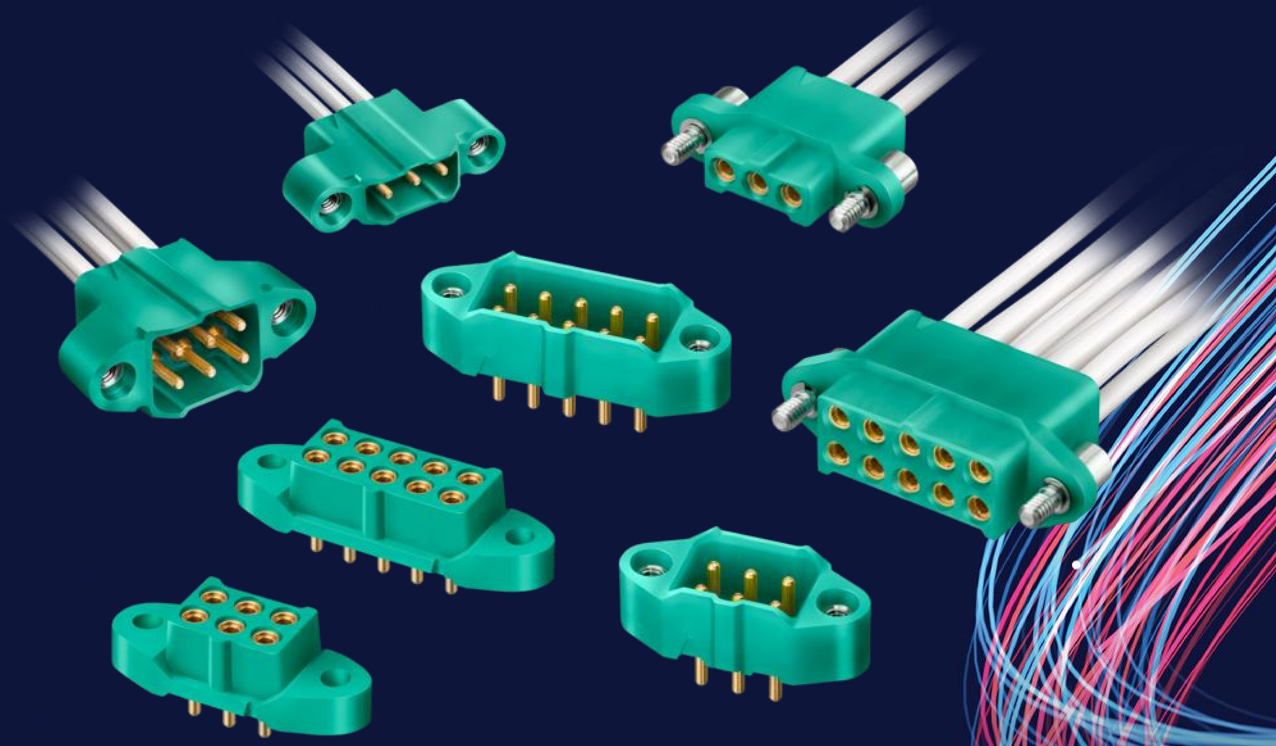

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M300

High-Reliability Connectors

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M300

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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.

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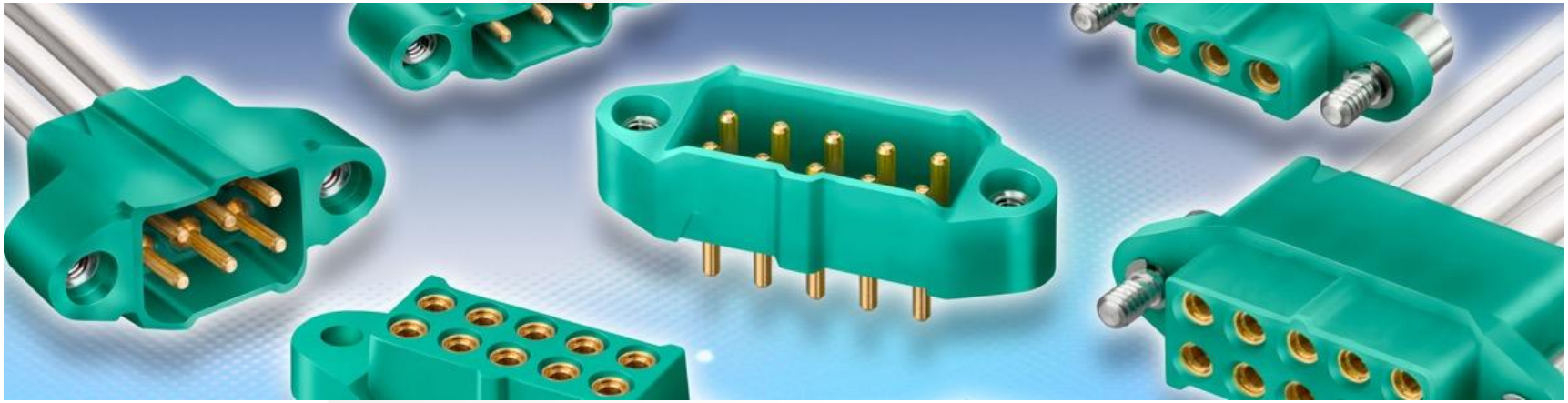
THE HEART OF THE CONNECTOR SYSTEM

A 4-fingered Beryllium Copper female receptacle 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

WHAT ARE THE VARIANTS?



Currently the M300 range covers:

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

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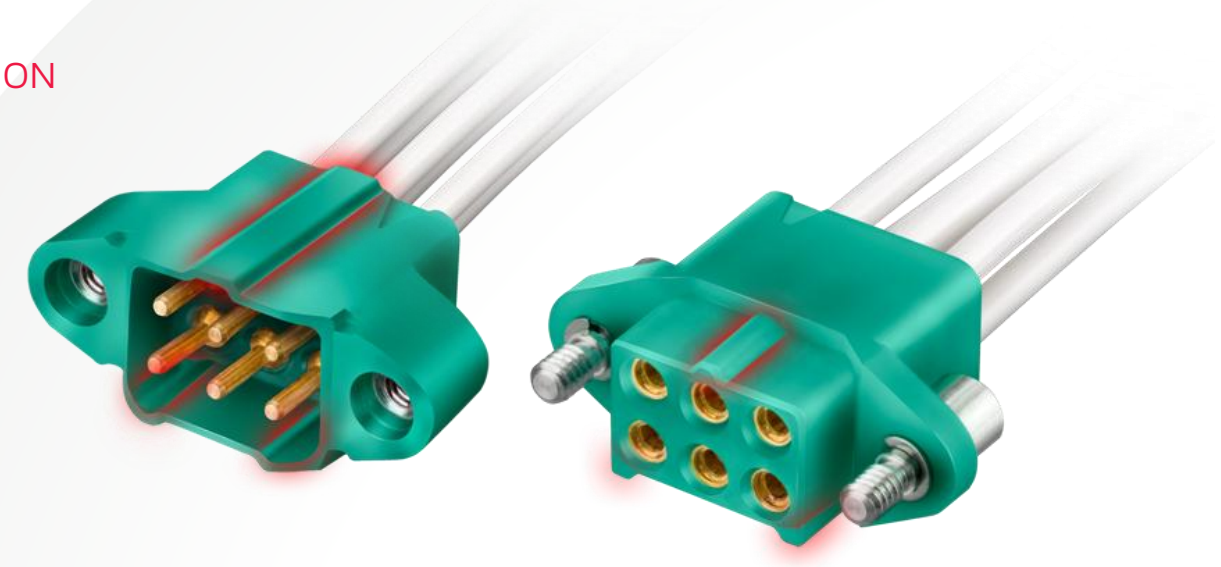
FEATURES – KEYWAY POLARIZATION



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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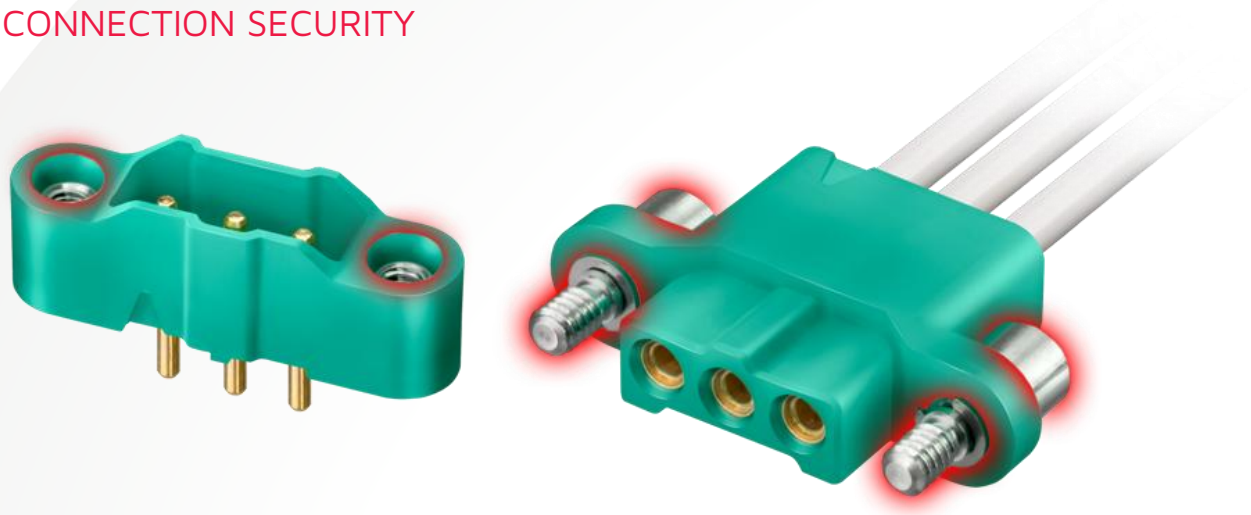
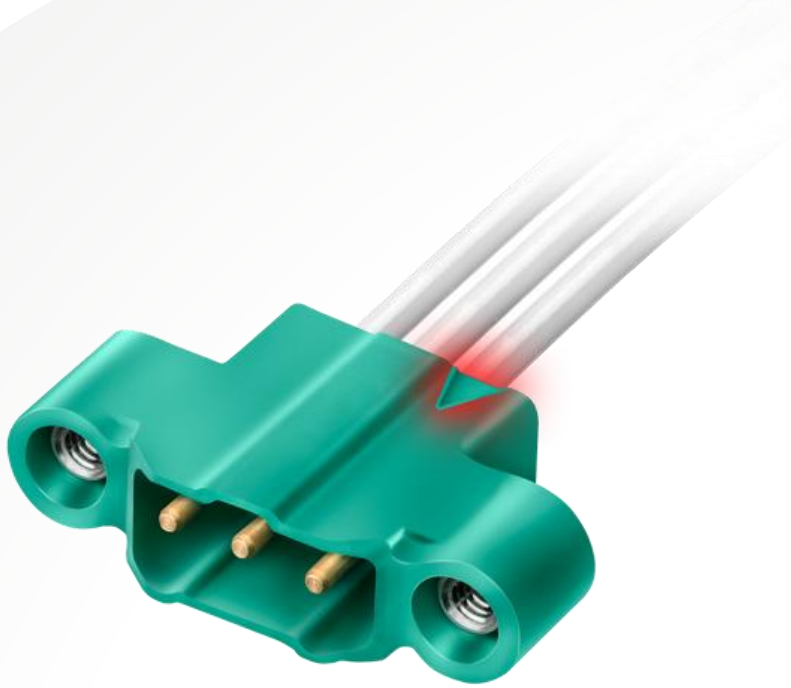
FEATURES – JACKSCREWS FOR CONNECTION SECURITY



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

M300

FEATURES – NO. 1 POSITION IDENTIFIED



All male plug and female receptacle 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.

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FEATURES – CABLING SIZES

Both Male Plug and Female Receptacle cable connectors are designed to suit 18AWG to 22AWG equipment wires, with a maximum external diameter of Ø1.8mm for 18-20AWG, and Ø1.4mm 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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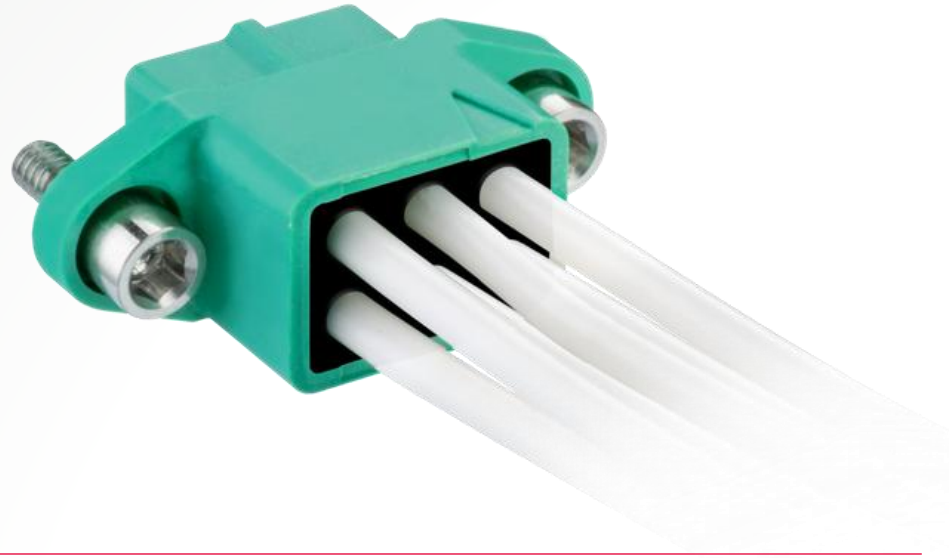
FEATURES – POTTING WALL



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.

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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 for Datamate Crimping, which uses the same methodology.

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PERFORMANCE – ELECTRICAL SPECIFICATIONS

Current Rating	**10A**	EIA-364-70A
Contact Resistance	6mΩ Max	EIA-364-23B
Insulation Resistance	100MΩ 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.

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.

PERFORMANCE – MECHANICAL SPECIFICATIONS

Durability	1,000 operations	EIA-364-09C
Vibration	10g No Discontinuity >1µs	EIA-364-28
Shock	**100g** 6ms, No Discontinuity >1µs	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.

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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.

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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 statement.

M300

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

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- Powerful
- Rugged
- Defies Extreme Heat

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