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RANGE

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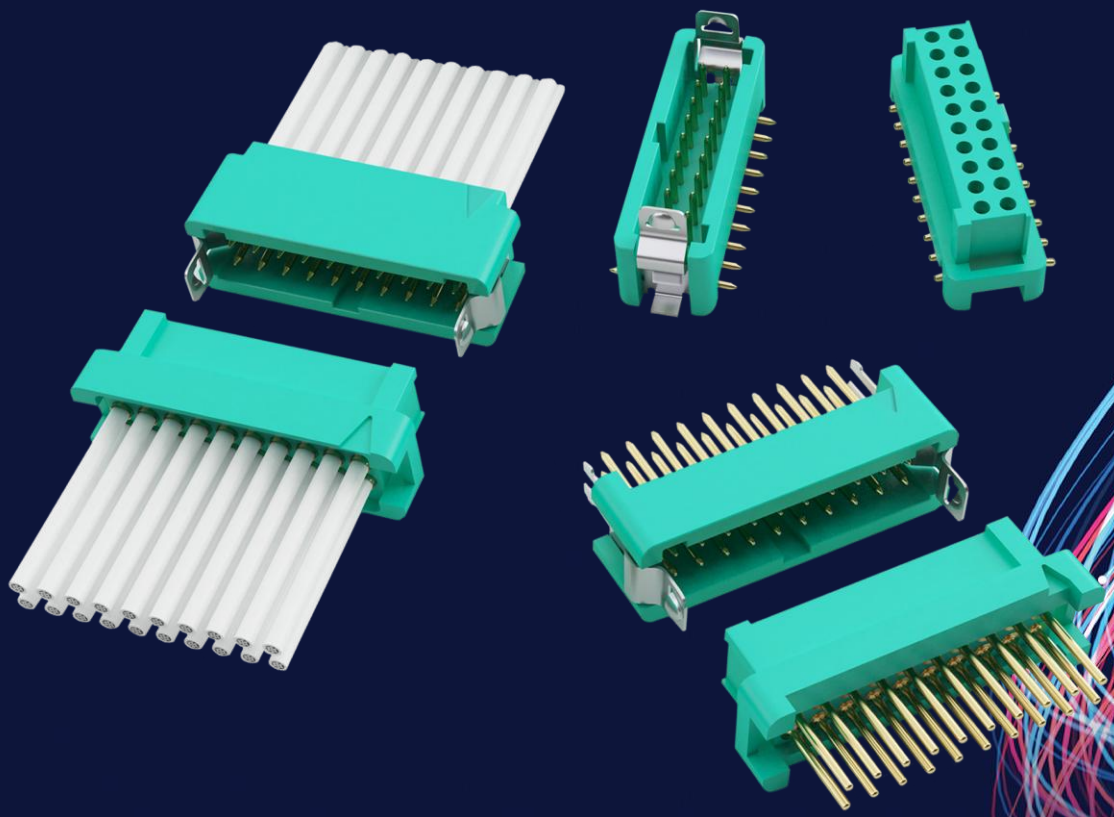

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WHY A MICRO-MINIATURE CONNECTOR?

A demand for a smaller footprint, an increasing number of high density opportunities, and a requirement for a lightweight connector solution, has driven the demand for a micro-miniature connector with high-reliability performance.

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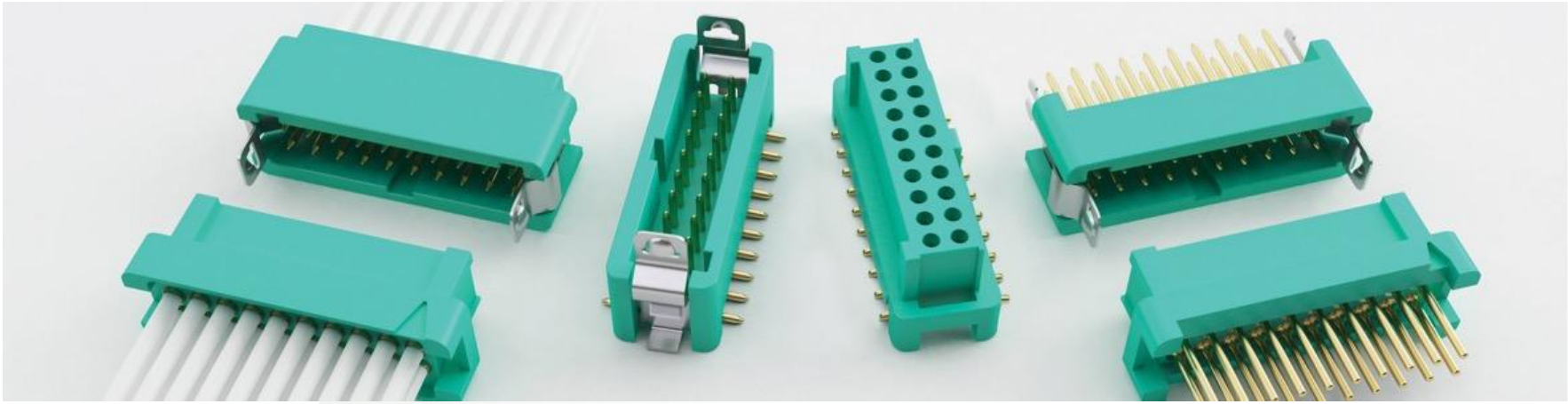
WHAT IS THE PITCH OF THE CONNECTOR AND WHY?



Gecko is a 1.25mm pitch connector, maintaining the selection of Harwin High-Reliability connectors at metric pitches (accompanied by Datamate at 2mm/4mm pitch, M300 at 3mm pitch and Kona at 8.5mm pitch).

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FOOTPRINT SAVINGS

45% On 2mm Pitch

35% On Micro-D

The space-saving obtained with Gecko connectors gives a significant benefit over existing high-reliability connectors, reflected in both the footprint and the weight of the connectors being drastically reduced.

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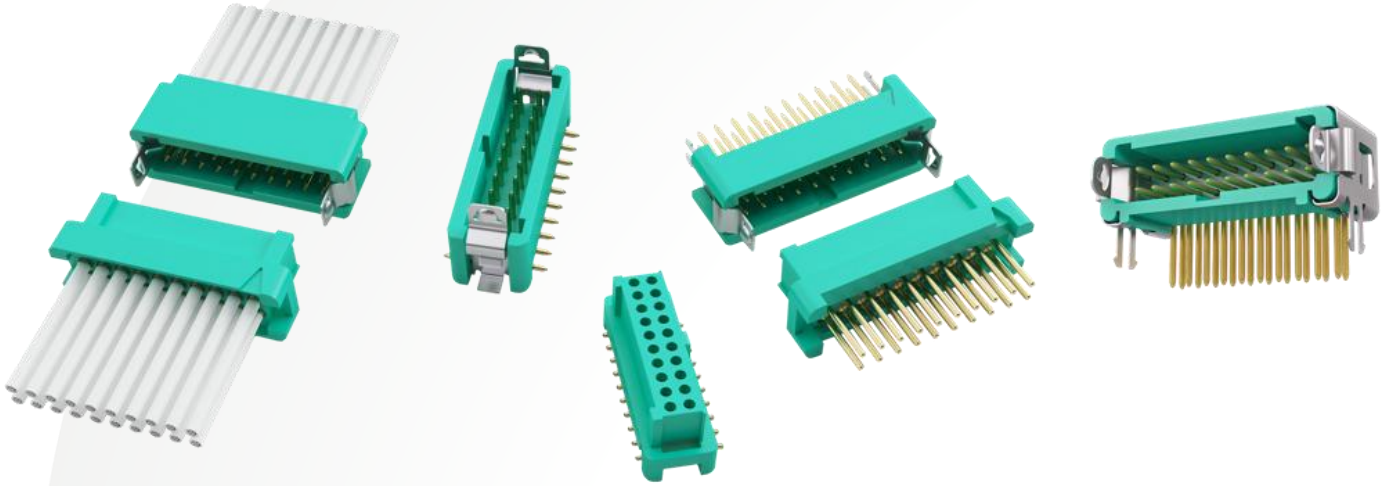
THE HEART OF THE CONNECTOR SYSTEM

A 4-fingered Beryllium Copper female receptacle contact gives superb performance, for both electrical and mechanical specifications. These contacts are precision-turned on state-of-the art equipment at our UK headquarters, and plated with a gold finish to resist multiple insertions.

WHAT ARE THE VARIANTS?

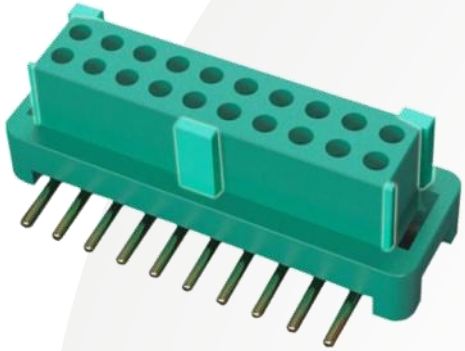


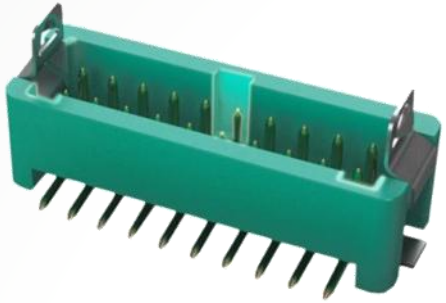
Currently the Gecko Latch range covers:

- Male Plug Straight in PC Throughboard Tail and SMT, Male Plug Right-Angle in PC Throughboard Tail;
- Female Receptacle Straight in PC Throughboard Tail and SMT;
- Male Plug and Female Receptacle Crimp – available as separate crimps and housings, full cable assemblies or individual pre-cabled contacts.

See also the Gecko-SL Product Training Module for versions with screw-locking instead of latching.

FEATURES – KEYWAY POLARIZATION





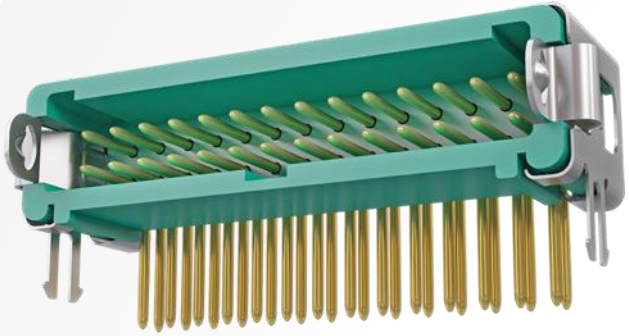
The polarization has been significantly improved over existing methods, to ensure that these small connectors cannot be mated inversely. Five polarization keyways have been included in the design, on each corner and in one side.

FEATURES – EASY TO RELEASE LATCHES

By reversing the Datamate latch design, we achieved a design improvement - it is not possible to overstress these Gecko latches during normal use. Latches are pushed in to dis-engage the mating female receptacle, instead of pulled out. This means they cannot be over-bent, as the male plug mating connector provides a stop point.

Tooling has also been designed to assist with dis-engaging the latches, when access to the side of the connector is restricted (see later in the module).

FEATURES – RETENTION BARB FOR THROUGH HOLE



To assist with mechanical strain relief, the hold-down features have been incorporated as part of the location pegs, resulting in barbs which latch through the PCB. These barbs are designed to give retention on standard PCB thicknesses of 1.6mm and 2.4mm and are available as an option on all male plug PCB connectors.

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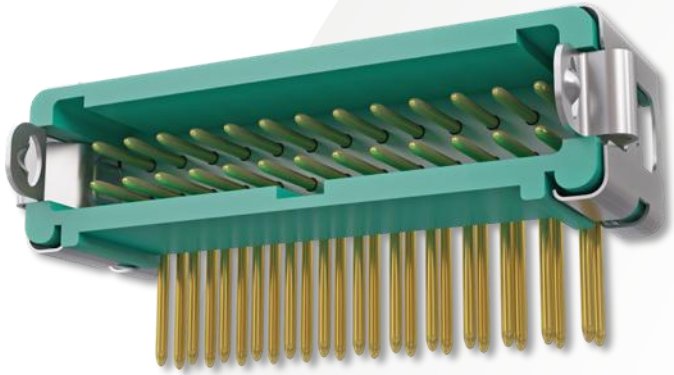
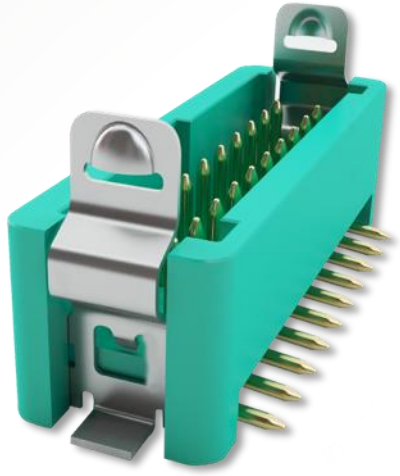
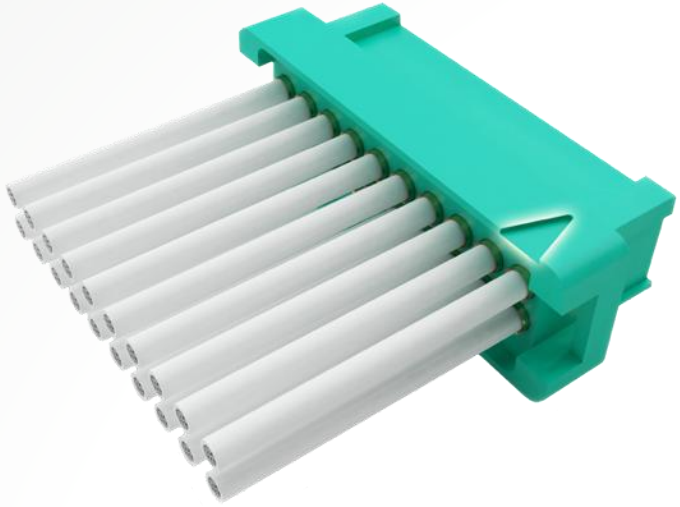
FEATURES – SURFACE MOUNT METAL SOLDER TABS





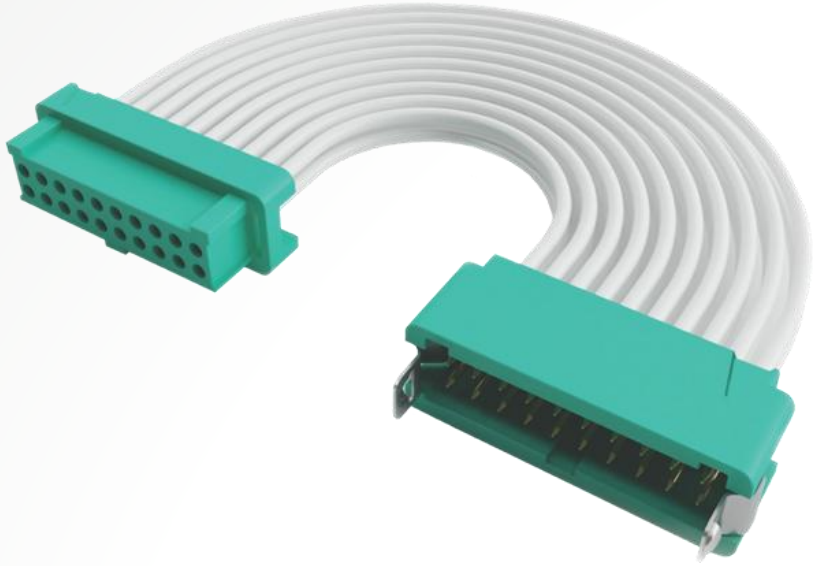
The male plug PCB connectors can also be supplied with Surface Mount hold-down options, giving a greater SMT soldering footprint to increase the retention strength to the PCB.

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, before continuing on the second row from the contact beside position 1.

FEATURES – CABLING AS STANDARD



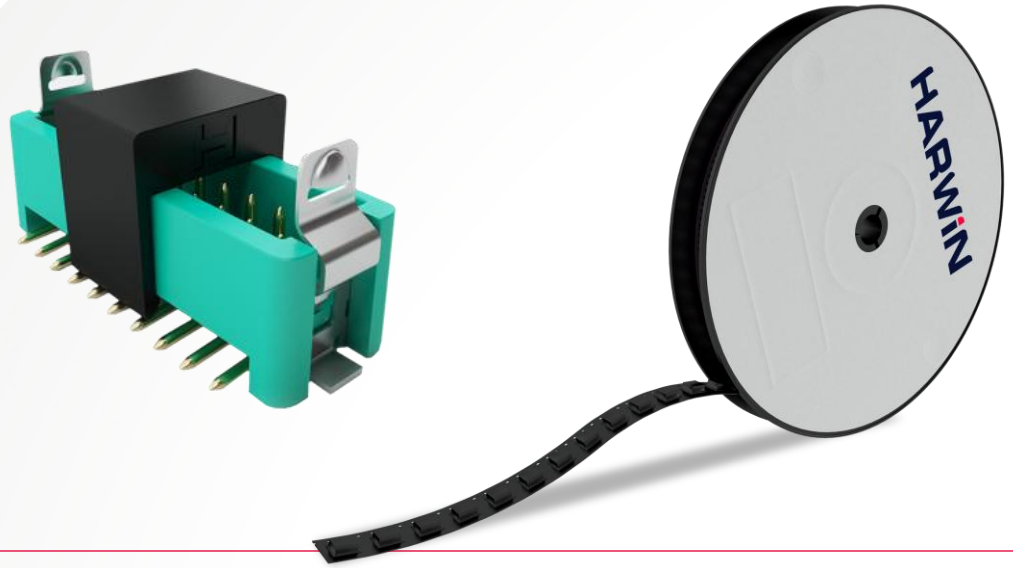
Cable assemblies for such a small connector can be more involved than larger connectors. To assist further, Harwin offers multiple variations of pre-cabled products:

- Separate part numbers for contacts and housings, with full hand tooling for cable assembly manufacture (see later);
- Pre-cabled individual contacts, with both single-ended and double-ended options, standard or custom lengths;
- Full cable assemblies in single- and double-ended options, standard or custom lengths.

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. For the full connector assemblies supplied by Harwin, potting compound has already been applied.

TAPE AND REEL PACKAGING



All Gecko PCB mounting products are available in Tape and Reel format, for automated PCB assembly. Straight connectors are packaged with a pick-and-place cap for vacuum nozzles; right-angle connectors can be picked using the flat side of the housing.

HAND TOOLING

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

- Hand Crimp tool Z125-900, and Positioner Z125-901 (both are required for correct crimping);
- Insertion/Removal Tool Z125-902 (for correctly inserting or removing the crimped contacts into a housing);
- Tools for un-mating latched connectors – Z125-926XX00 (XX = number of contacts in the connector).

Videos are available for Crimping and Inserting, and for Un-mating using the Z125-926 tools.

PERFORMANCE – ELECTRICAL SPECIFICATIONS

Current Rating	**2A**	EIA-364-70
Contact Resistance	20mΩ	EIA-364-06
Insulation Resistance	1,000MΩ	EIA-364-01

The high reliability design of the Gecko connector means little compromise on current rating. Other performance ratings are comparable to the larger connectors.

PERFORMANCE – ENVIRONMENTAL SPECIFICATIONS

Temperature Range	**-65°C to +150°C**	EIA-364-32
Salt Spray	48 hours	EIA-364-26
Environmental Classification	65/150/56 days at 93% 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 150 degrees C as a continuous working environment.

PERFORMANCE – MECHANICAL SPECIFICATIONS

Vibration	20g No Discontinuity >1µs	EIA-364-28
Shock	Z axis **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.

LEGISLATION – ENVIRONMENTALLY FRIENDLY MATERIAL

The materials used in the Gecko 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.

OUTGASSING

The Nylon 4T plastic used in the construction of Gecko housings has a low outgassing index. Details can be found on the Harwin Outgassing statement.

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AWARD-WINNING PRODUCT

ECN iMPACT 2014 Winner Awards

Elektra 2013 WINNER

ACE AWARDS 2014 Winner EE Times EDN

At its launch, the Gecko connector system won multiple industry awards:

- Elektra Awards (2013) – Winner of "Passive & Electromechanical Product of the Year" category;
- EE Times/EDN Ace Awards (2014) – Winner of "Passive, Interconnects and Electromechanical" category;
- ECN Impact Awards (2014) – Winner of "Packaging and Interconnects" category.

MARKETS

Many markets have a requirement for rugged, high-reliability connectors, with the additional requirement for miniature size and minimal weight restrictions. Built to the same exacting standards as our Datamate range, Gecko delivers in these industries:

- UAVs
- Autosport
- CubeSats
- Robotics
- Oil & Gas

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RELIABILITY JUST GOT SMALLER

GECKO | CP008/30072025 | PATENT PUBLISHED

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