High-Reliability at 1.25mm pitch

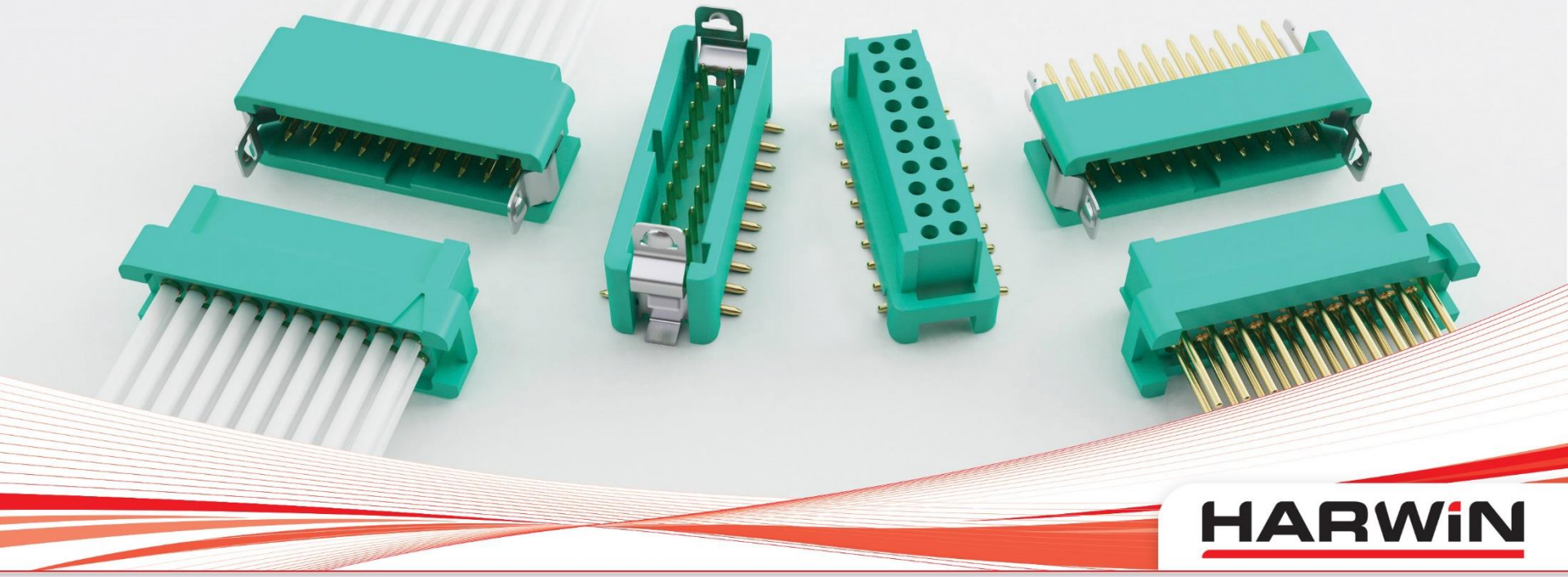
HARWiN

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.

Gecko High-Reliability Connectors

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 and M300 at 3mm pitch).

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.

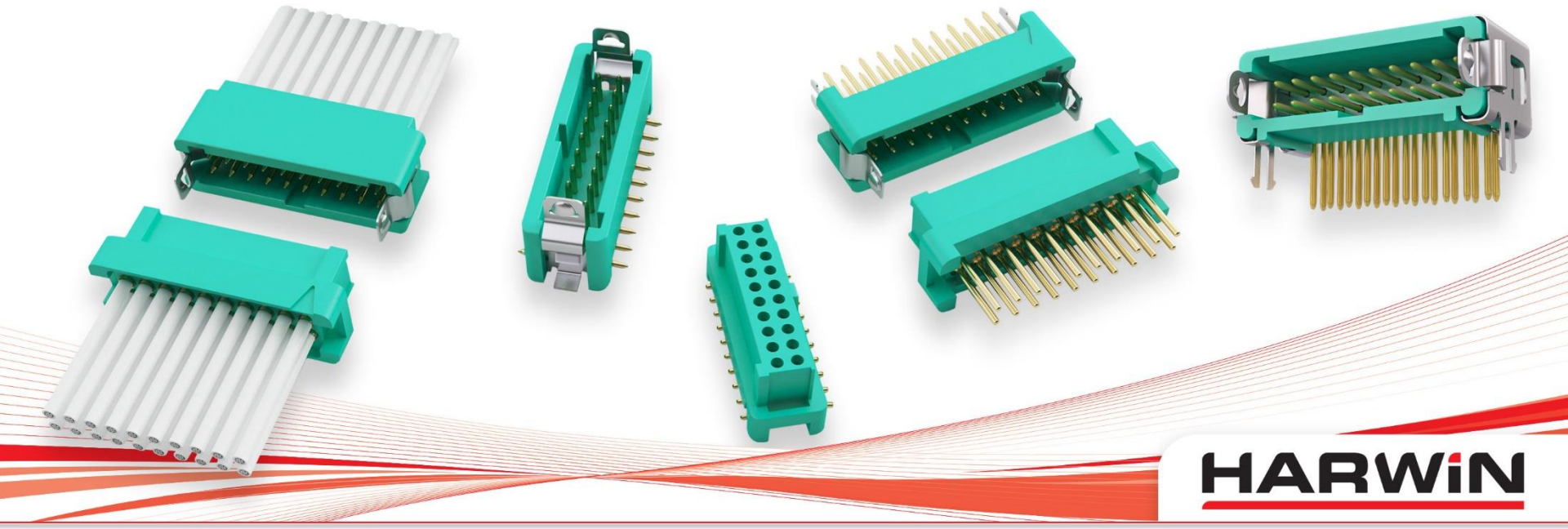
Gecko High-Reliability Connectors

The heart of the connector system

A 4-fingered Beryllium Copper female contact gives superb performance, for both electrical and mechanical specifications. 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.

Gecko High-Reliability Connectors

What are the variants?



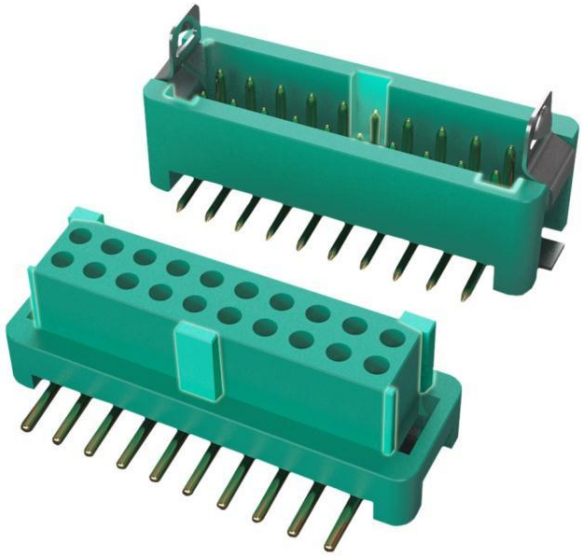
Currently the range covers:

- Male Vertical in PC Throughboard Tail and SMT, Male Horizontal in PC Throughboard Tail;
- Female Vertical in PC Throughboard Tail and SMT;
- Male and Female Crimp – available as separate crimps and mouldings, full cable assemblies or individual pre-cabled contacts.

See also the Gecko Screw-Lok PTM for versions with screw-locking instead of latching.

Gecko High-Reliability Connectors

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.

Gecko High-Reliability Connectors

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 now pushed in to dis-engage the mating female, instead of pulled out. This means they cannot be over-bent, as the mating body 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).

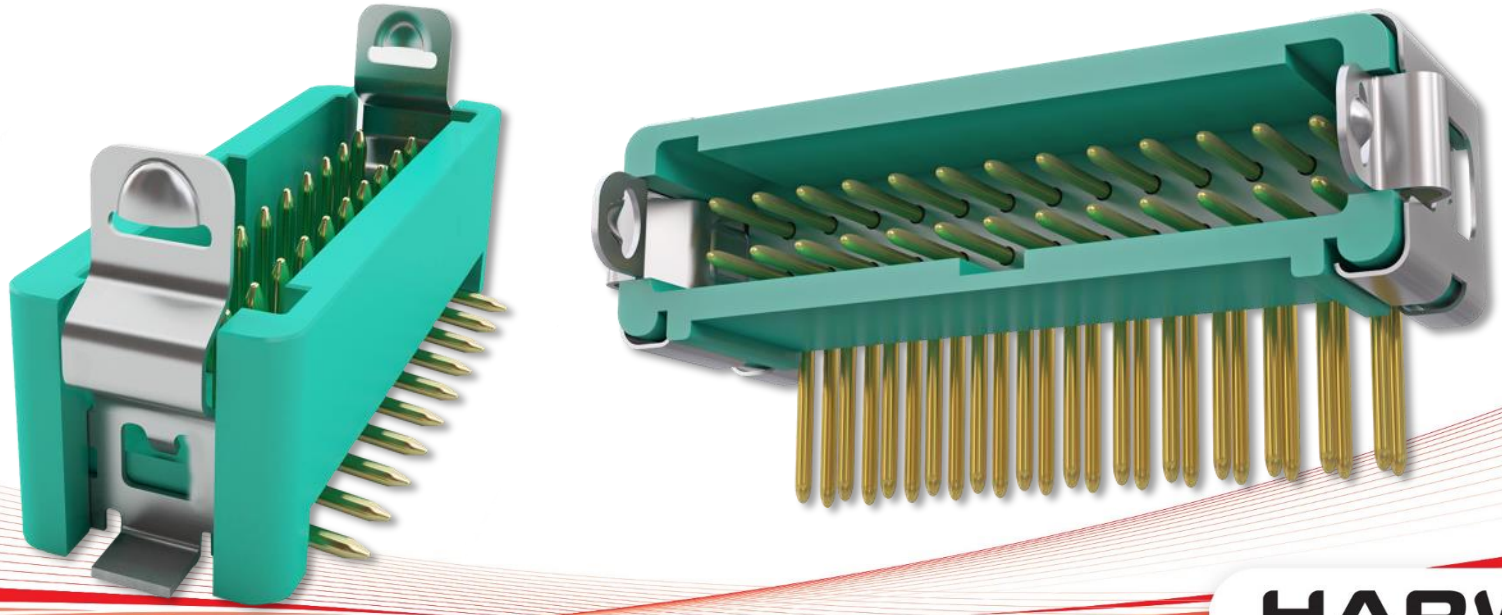
Gecko High-Reliability Connectors

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 PCB connectors.

Gecko High-Reliability Connectors

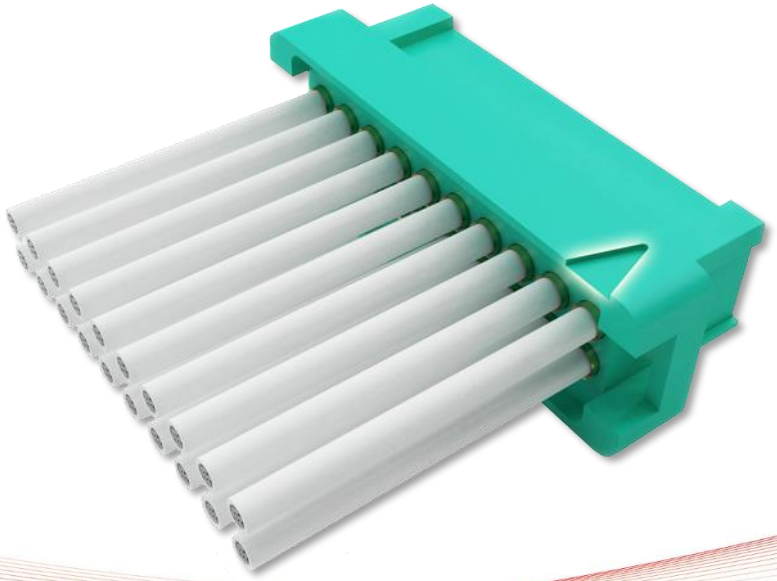
Features – Surface Mount metal solder tabs



The male 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.

Gecko High-Reliability Connectors

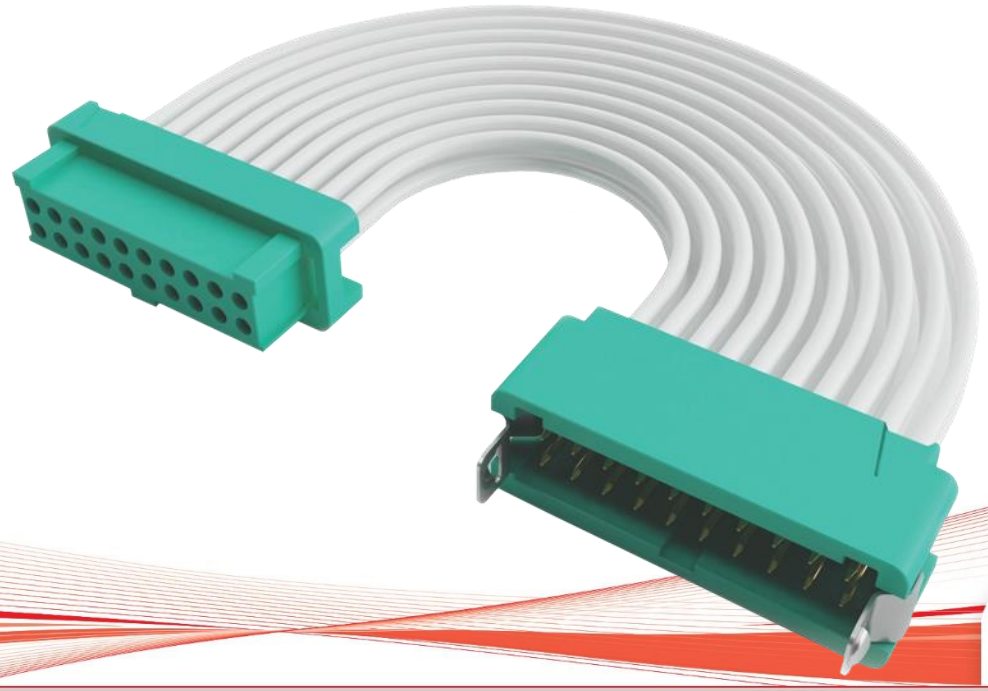
Features – No. 1 position identified



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

Gecko High-Reliability Connectors

Features – Cabling as standard



Cable assemblies for such a small connector can be more involved than larger connectors. To assist further, Harwin offer 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.

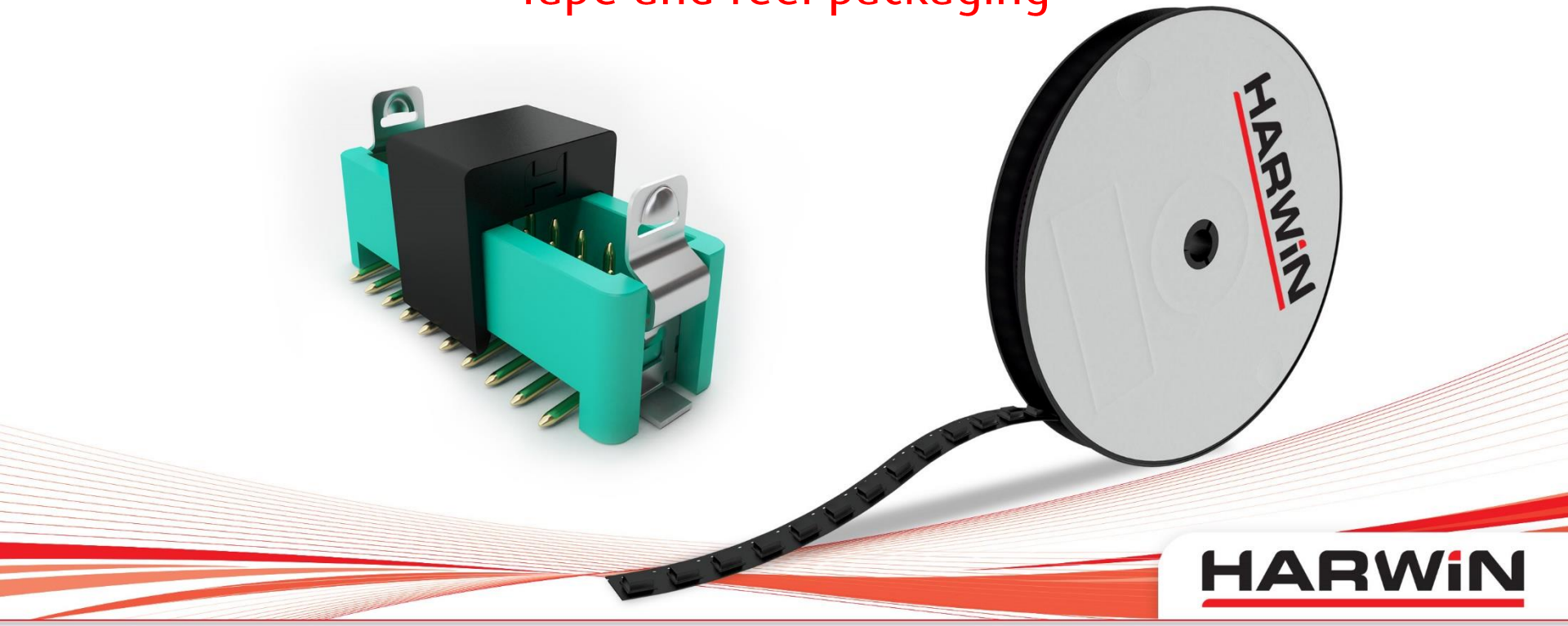
Gecko High-Reliability Connectors

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.

Gecko High-Reliability Connectors

Tape and reel packaging



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

Gecko – 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 on the Harwin website for Crimping and Inserting, and for Un-mating using the Z125-926 tools.

Gecko High-Reliability Connectors

Performance – Electrical Specifications

Current Rating	2A	EIA-364-70
Contact Resistance	20mΩ	EIA-364-06
Insulation Resistance	1000MΩ	EIA-364-01

2A

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

Gecko High-Reliability 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

-65°C to +150°C

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.

Gecko High-Reliability Connectors

Performance – Mechanical Specifications

Vibration	20g No Discontinuity >1µs	EIA-364-28
Shock	Z axis 100g 6ms No Discontinuity >1µs	EIA-364-27

Z axis 100g 6ms

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.

Gecko High-Reliability Connectors

Legislation – Environmentally friendly material

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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.

Gecko High-Reliability Connectors

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 support article.

Gecko – Award-winning Product

The Gecko connector system has 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.

Gecko High-Reliability Connectors

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

Gecko – Design Tools

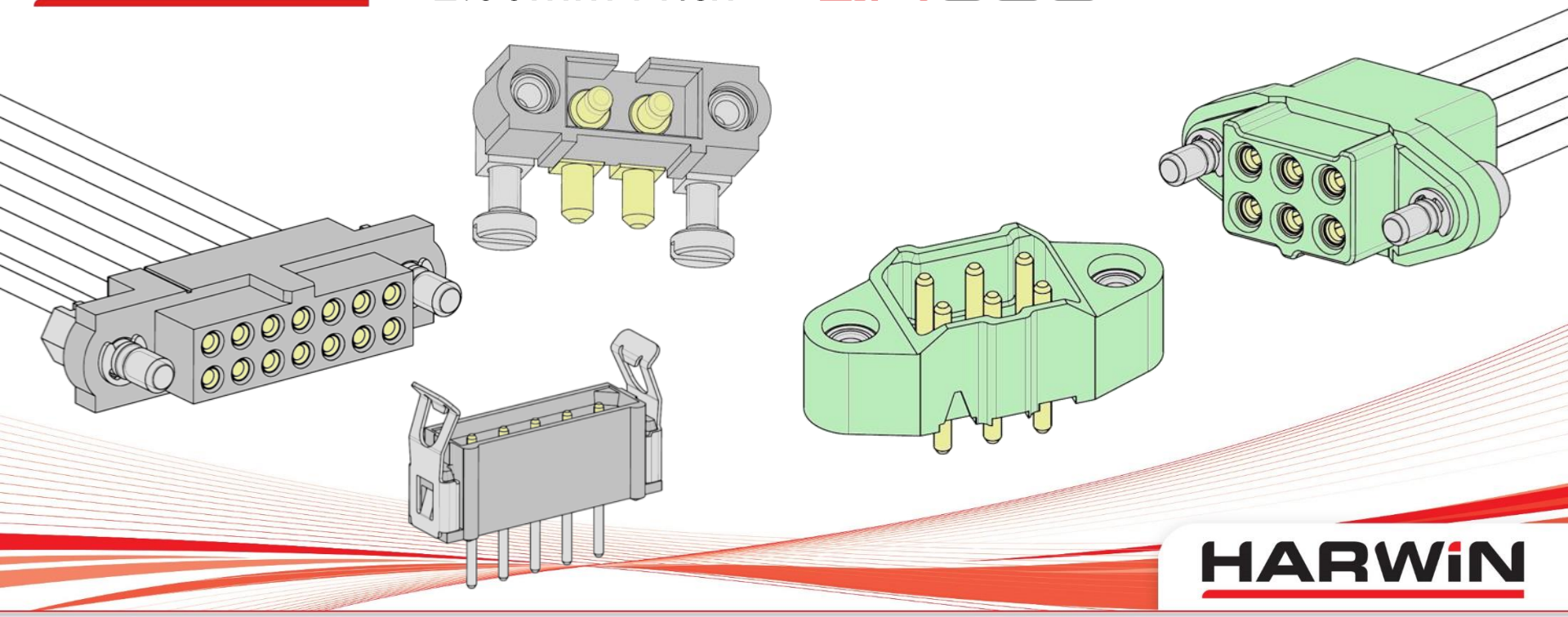
We can offer 3D CAD models in STP and IGES format, a Video to assist crimping techniques, Eye Diagrams and other Test Reports, as well as Technical Support from our team of Harwin Experts. Contact Harwin if you need assistance in locating these tools.

reliability just
got smaller

If you like this product, try...

Datamate - 2.00mm Pitch

M300 - 3.00mm Pitch



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- 3A per signal, up to 40A per power contact
- Jackscrew or latching system for strain relief
- Resists Vibration to 10G and Shock to 100G
- Temperature range -55 deg C to +125 deg C
- PCB connectors in Throughboard or SMT, Cable options

- Up to 10A per contact
- Jackscrew fixing system for strain relief
- Resists Vibration to 10G and Shock to 100G
- Temperature range -65 deg C to +175 deg C
- Vertical and Cable options

Get Help from a Harwin Expert

Our experts are specialists in their field with many years of experience in their respective roles and industries.

Find an expert that can help you with your enquiry.

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CAD Models and Evaluation Samples also available at www.harwin.com

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