



HARWIN

Component Specification

C12515

**Gecko
G125 Series 1.25mm Pitch High-Rel Connectors**

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1. DESCRIPTION OF CONNECTOR

Gecko connectors are 1.25mm pitch high-reliability rectangular connectors, with part numbers starting G125. There are three variants of the range; the variants are not intermateable:

- **Gecko-SL**
Screw-Lok: one connector has floating screws for secure, robust interconnection to the counterpart. Screw-Loks can also have board or panel mount studs for secure PCB or enclosure retention.
- **Gecko-MT**
Mixed Technology: connectors are equipped with both signal and power contacts and are available in cable or throughboard configurations. The same Screw-Lok fixing variations as Gecko-SL are available.
- **Gecko Latch (original design)**
Male connectors can be equipped with easy to release locking latches for secure interconnection to the female. Latches can be specified with through board locking features or surface mount pads for additional security.

The ranges generally comprise of cable barrel crimp contacts and housings available in Male Plug and Female Receptacle genders; Straight and Right-Angled Throughboard PC Tail Connectors and Straight Surface Mount Connectors. Connectors are fully shrouded, unsealed connectors for interconnecting cable-to-cable, cable-to-board, and board-to-board applications.

The Gecko cable connectors are supplied as connector housings and separately ordered replaceable contacts. They are designed for interconnecting cable-to-cable and cable-to-board. The housings have a low profile potting wall to allow backpotting for additional strain relief and improved sealing. All ready-made cable assemblies are supplied backpotted for customer convenience, and individually pre-cabled contacts are also available.

All contacts are gold plated for high performance and long service life; the contact plating is hard acid gold of 98% purity.

The Gecko-SL and Latch ranges cover various sizes from 6 to 50 total number of contacts in a dual row configuration. Connector housings are polarised to prevent mis-mating and have contact number one indicated on the outside of the housings. Metal backshells are available that are compatible with both Gecko-SL and Gecko-MT ranges, to provide mechanical, RF and EMC protection. Gecko-MT connectors are available in a variety of signal (double row) and power (single row) contact configurations – check the website for the latest contact variations available.

2. RATINGS

2.1. Materials

Any variations to these materials will be listed on individual drawings.

Power Contact	Beryllium Copper, Gold over Nickel finish
Female Receptacle Signal Contact	Beryllium Copper, Gold over Nickel finish
Male Plug PCB Signal Contact	Phosphor Bronze, Gold over Nickel finish
Male Plug Cable Signal Contact	Brass, Gold over Nickel finish
Housing	30% Glass Filled Thermoplastic, UL94 V-0
Latches	Copper-Nickel-Tin alloy, Tin over Nickel finish
Screw-Lok fixings	Stainless Steel
Metal Backshells	Aluminium 6061-T6, High Phosphorus Nickel finish
Potting Compound	Stycast 2651MM with Catalyst 9

2.2. Electrical Characteristics

2.2.1. Current Rating (EIA-364-70A: 1998)

Signal Contact:

One contact per connector is electrically loaded, 25°C ambient 2.8A max

Current per contact through all contacts, 25°C ambient 2.0A max

Signal Contact on Flex Circuit:

One contact per connector is electrically loaded, 25°C ambient 0.4A max

Power Contact:

Current per contact through all contacts, 25°C ambient 10.0A max

2.2.2. Other Electrical Characteristics

Working Voltage:

At 1,006mbar, sea level 450V DC or AC peak

At 44mbar, 21,336m/70,000ft 250V DC or AC peak

Voltage Proof (EIA-364-20C: 2004):

At 1,013mbar, sea level 600V DC or AC peak

At 44mbar, 21,336m/70,000ft 350V DC or AC peak

Contact Resistance (EIA-364-06C: 2006):

Initial 20mΩ max

After conditioning 25mΩ max

Insulation Resistance (EIA-364-21C: 2000):

Initial 10GΩ min at 500V DC

After conditioning (excluding Salt Mist conditioning) >1GΩ min at 500V DC

Creepage Distance (contact-to-contact) 0.15mm min

Clearance Distance (contact-to-contact) 0.15mm min

2.3. Environmental Characteristics

Humidity (EIA-364-31B: 2000) 96 hours at 93% RH

Temperature Range (EIA-364-32C: 2000 Test Cond. IV) 30mins dwell, 5 cycles at -65°C to +150°C

Temperature Life (EIA-364-17B: 1999 Test Cond. X Method A) .. 96 hours at +150°C±5°C without load

Salt Mist (EIA-364-26B: 1999 Test Condition B) 48 hours continuous exposure

Vibration Severity ◇● (EIA-364-28D: 1999 Test Cond. IV) 10Hz to 2,000Hz, 1.5mm, 198m/s² (20G),
2 hour duration

Shock Severity ◇❖● (EIA-364-27B: 1996 Test Cond. E) 981m/s² (100G) for 6ms in Z axis,
490m/s² (50G) for 11ms in X & Y axes

Bump Severity ◇ 390m/s² (40G), 4,000±10 Bumps

Acceleration Severity (EIA-364-01A: 2000) 490m/s² (50G)

◇ Latches or Screw-Loks fully utilized.

❖ X & Y tested at lower levels due to shaker limitations.

● It is recommended that backpotting compound is applied to crimp assemblies for vibration at higher frequencies.

2.4. Mechanical Characteristics

Durability (contacts).....	1,000 operations
Durability (latches).....	100 operations
<i>By hand or with Z125-926XX00 tools; minimum added retention of 20N.</i>	
Insertion Force (per contact, using mating contact):	
Signal.....	2.8N max
Power.....	7.0N max
Withdrawal Force (per contact, using mating contact).....	0.2N min
Contact Retention in Housing (all contact types).....	6.0N min
Screw-Lok Retention in Housing.....	20.0N min
Latch Retention in Housing.....	4.0N min
Screw-Lok Torque.....	16 to 18cmN
Contact Wipe:	
Signal.....	0.1mm min
Power.....	0.63mm min

2.5. Wire Termination Information

See also [C049XX \(latest issue\) HRI Cable Assembly Component Specification](#).

2.5.1. Signal Contacts

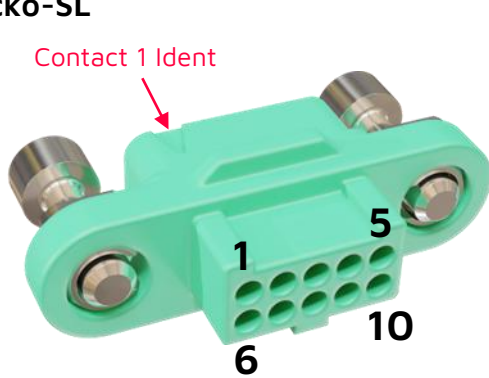
Wire Type (recommended).....	BS 3G 210 type A, MIL-W-16878/6 type ET or NEMA HP3 type ET
Maximum Insulation Diameter.....	Ø0.84mm
Insulation Strip Length.....	1.50-1.60mm
Recommended Tooling.....	Hand Crimp Tool Z125-900 Positioner Z125-901 Insertion/Removal Tool Z125-902
Recommended potting compound.....	Stycast 2651MM with Catalyst 9

AWG Wire Size	Qty & Nominal diameter (mm) of strands	Conductor Diameter (mm)	Area (mm ²)	Circular MIL Area (CMA)	Crimp Tool Setting	Crimp Height (mm)	Minimum Pull-Off Force (N)
26	7/0.15	0.533	0.128	253	6	0.95-1.10	18
28	7/0.13	0.381	0.072	159	5		13
30	7/0.10	0.305	0.057	100	5		12
32	7/0.08	0.203	0.035	62	5		6

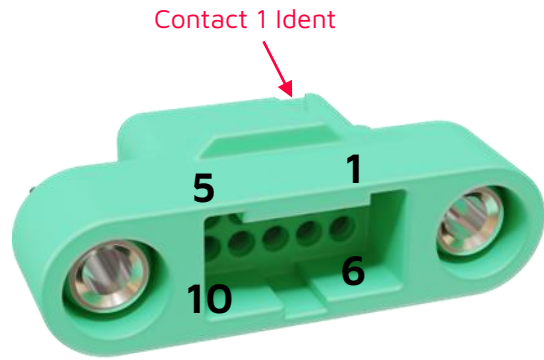
For information on crimping Gecko signal contacts refer to [Tooling Instruction Sheet IS-37](#). For information on insertion/removal of Gecko signal cable contacts refer to [Tooling Instruction Sheet IS-38](#). There is also a video on crimping and inserting Gecko contacts: <https://www.youtube.com/HarwinGroup>.

APPENDIX 1 – CONTACT NUMBERING

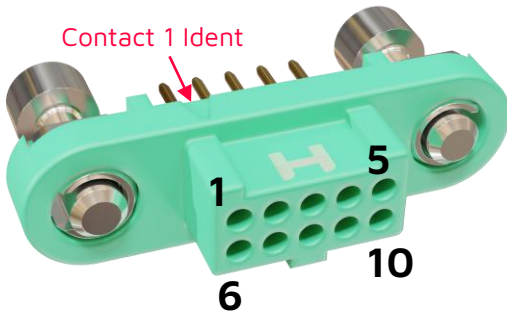
A1.1. Gecko-SL



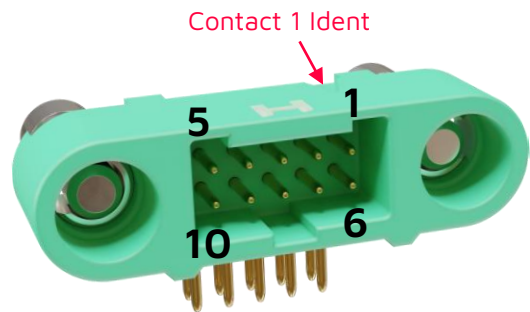
Female Receptacle Cable Housing



Male Plug Cable Housing



Female Receptacle PCB Mounted

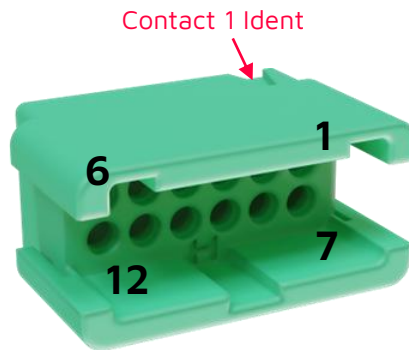


Male Plug PCB Mounted

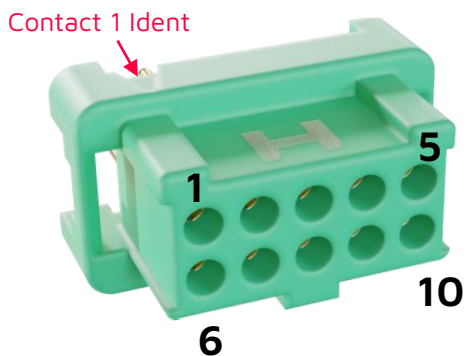
A1.2. Gecko Latch



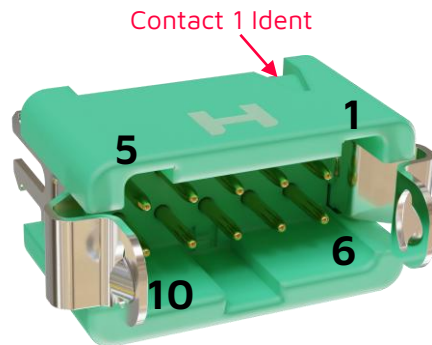
Female Receptacle Cable Housing



Male Plug Cable Housing



Female Receptacle PCB Mounted

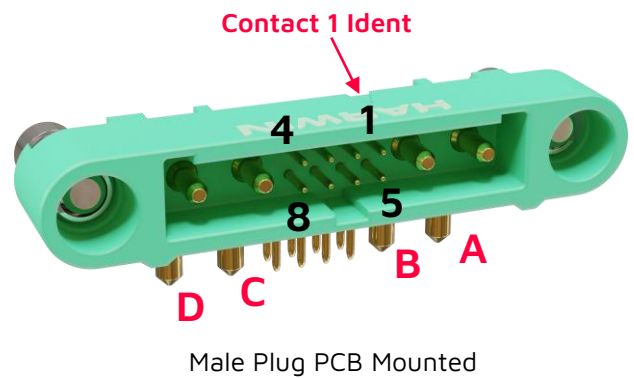
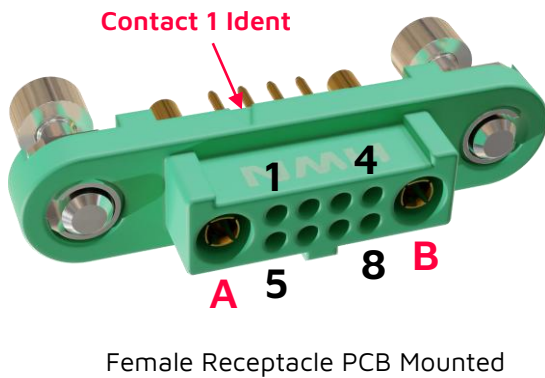
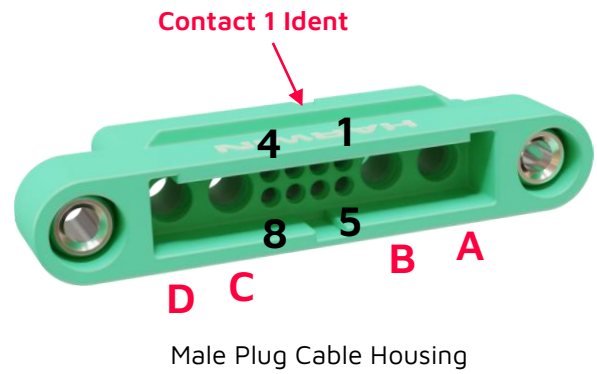
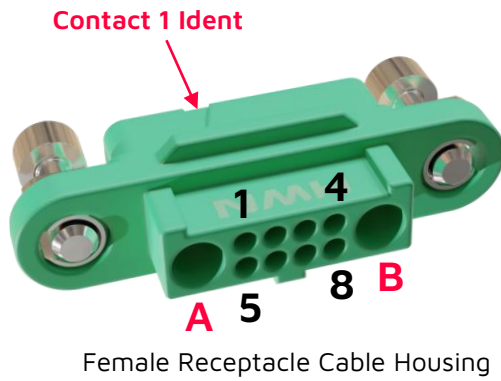


Male Plug PCB Mounted

A1.3. Gecko-MT (symmetrical layout)

The following variants adhere to this convention where special contacts are both sides of the signal contacts only:

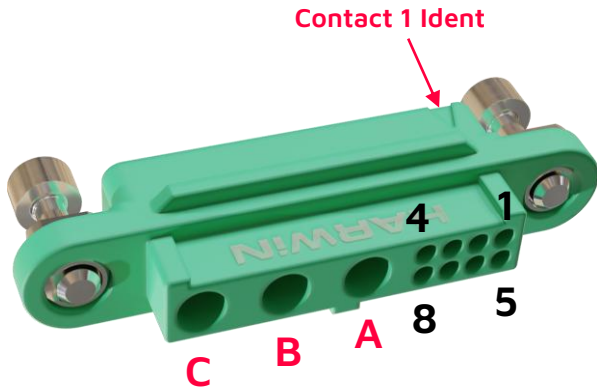
- G125-22496FX-0X-08-0X - Female Receptacle Cable Housing
- G125-32496MX-0X-08-0X - Male Plug Cable Housing
- G125-FV1XXFX-XABXABP - Female Receptacle PCB Mounted
- G125-MH1XXMX-XADXADP - Male Plug PCB Mounted



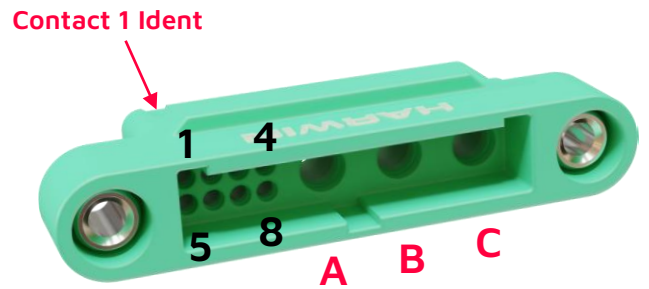
A1.4. Gecko-MT (non-symmetrical layout)

Variants shown have 8 signal contacts and 3 power contacts. This convention is true for the following part numbers where special contacts are on one side of the signal contacts only:

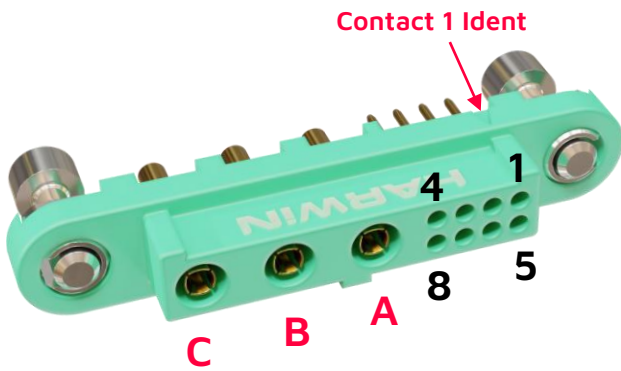
- G125-22496FX-XX-XX-00 - Female Receptacle Cable Housing
- G125-32496MX-XX-XX-00 - Male Plug Cable Housing
- G125-FV1XXFX-XXAB000P - Female Receptacle PCB Mounted
- G125-MH1XXMX-XXAD000P - Male Plug PCB Mounted



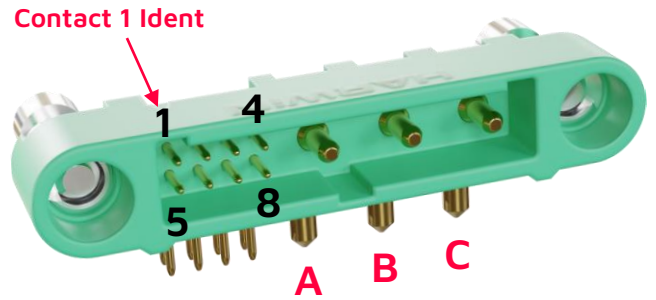
Female Receptacle Cable Housing



Male Plug Cable Housing



Female Receptacle PCB Mounted



Male Plug PCB Mounted

APPENDIX 2 – INSTRUCTIONS FOR SCREW-LOK CONNECTION

Connectors are fitted with Screw-Loks to provide a locking feature that prevents the connector from un-mating under adverse conditions (such as vibration and shock). They can also provide mechanical assistance in ensuring complete mating of connectors, when insertion forces are higher and may interfere with full mating by hand, or where access to the connector is restricted.

- 1) Connectors with board mount fixings should be fixed to the PCB with these fixings and tightened to a torque of **16-18Ncm**.

Board mount fixings must be fitted before Wave soldering.

Board mount fixings can be fitted either before or after Reflow soldering, as preferred by the customer. If fitted before soldering, ensure that fixings remain tight after soldering.

Note: Care must be taken when aligning internal and external threads, to avoid cross-threading and possible failure of parts.

- 2) The Screw-Lok connectors are Mate-Before-Lock. Engage the two connectors after ensuring correct polarity and then gently push them together, ensuring they stay aligned and straight to each other. You should be able to push them fully together.

Once mated, screw in one of the floating screw-loks fully to finger-tight. Then screw in the second screw-lok to finger-tight. Once both screw-loks are secured, you can then tighten them to the recommended torque of **16-18Ncm**.

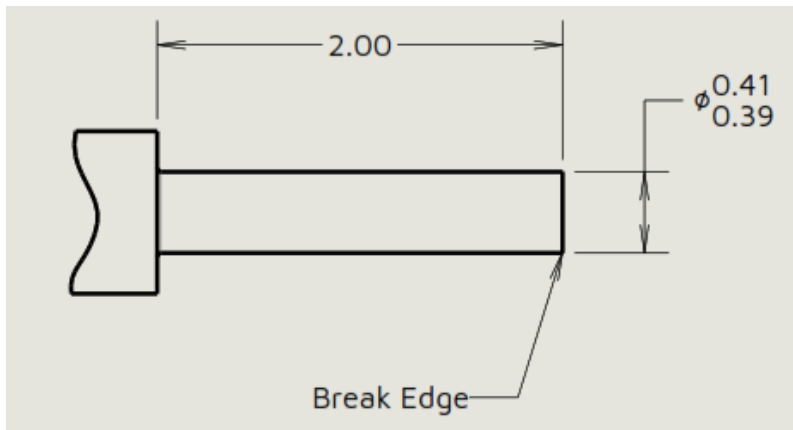
You may need to apply finger pressure at the centre of the connectors to ensure full engagement of both halves.

Note: Care must be taken when aligning internal and external threads, to avoid cross-threading and possible failure of parts.

- 3) To un-mate the two connectors, one of the screw-loks can be unscrewed until fully loose, and then the second screw-lok can be fully unscrewed. The connectors can then be pulled apart, ensuring to still keep them aligned and straight to protect the contacts.

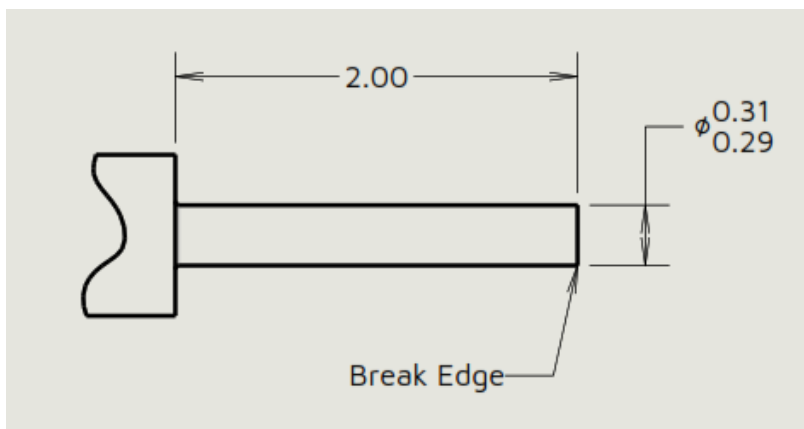
APPENDIX 3 – GAUGES**NOTES:**

1. Material = Steel to BS1407 or equivalent
2. Gauging surfaces to be hardened/ground to 650 H.V. minimum
3. Ultimate wear limit of 0.005mm is allowable on gauging diameters
4. All dimensions are in millimetres
5. For explanation of dimensions, see BS8888
6. Unless otherwise stated all dimensions are maxima

A3.1. Withdrawal/Holding Gauge – Signal Contact

GO Gauge

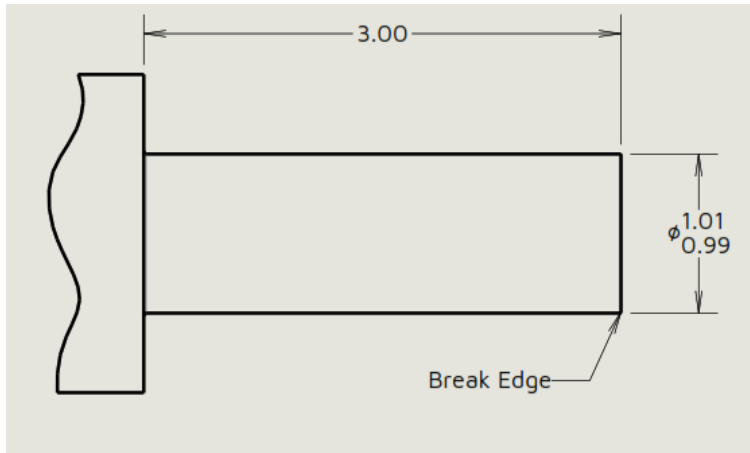
Mass = 15 +/-1gm



NOGO Gauge

Mass = 10 +/-1gm

A3.2. Withdrawal/Holding Gauge – Special Contacts



GO & NOGO Gauge
GO Gauge Mass = 40 +/-1gm
NOGO Gauge Mass = 90 +/-1gm