

Socket with AR200 or AR300 Contact Systems (Contact Set and Silmat®) Assembly and Maintenance Instructions

Recommended Tools

- Socket drawings for components terminology and appropriate stack up sequence.
- Allen wrench and/or screw drivers appropriate for socket mounting screws.
- Straight edge tool and/or flat tip tweezers for easing contacts on/off the guide pins.
- Stiff wire brush for cleaning and removing oxides from Contact Set and PCB.
Aries recommends Kita Nanotek 50x30-145L 0.03-6L SUS.
- Soft animal hair brush or Post-it Note with light adhesive for gently removing debris and contaminants from Silmat®.
- Compressed air for blowing debris off Contact Set, Silmat® and PCB.

Assembly, Removal & Storage

Assembly of Contacts to Socket:

Install/Remove the Contact Set:

- Note keying orientation patterns and/or tooling holes and/or side with gold plated mounting arms.
- Blow off both sides with compressed air prior to assembly to remove any debris.
- Install Contact Set on the back side of the socket body, orienting the side with the gold plated mounting arms and contact tips towards the socket body and DUT.
- Gently press one of the Contact Set's tooling holes over a first corresponding guide pin.
- Do the same for the next tooling hole and guide pin.
- Gently manipulate any remaining tooling holes onto their corresponding guide pins (if applicable).
- When all tooling holes are on the guide pins, use a flat tip tweezers to ease the Contact Set further down onto the pins, alternating sides until the Contact Set is seated against the socket.
- Work carefully to avoid enlarging or deforming the Contact Set tooling holes.
- Work the opposite direction to remove the Contact Set, carefully easing it off the guide pins. Do not use a sharp instrument and/or grab one corner and pull it off the guide pins because it can cause damage to the Contact Set tooling holes.

Install/Remove the Silmat®:

- Note keying orientation patterns and/or tooling holes.
- Blow off both sides with compressed air prior to assembly to remove any debris.
Important: Do not touch, rub, brush or clean the Silmat® columns.
- Install Silmat® so one side touches the Contact Set and the other side faces the PCB.
- Gently press one of the Silmat®'s tooling holes over a first corresponding guide pin.
- Do the same for the next tooling hole and guide pin.
- Gently manipulate any remaining tooling holes onto their corresponding guide pins (if applicable).
- When all tooling holes are on the guide pins, use flat tip tweezers to ease the Silmat® further down onto the pins, alternating sides until the Silmat® is seated against the Contact Set.
- Work carefully to avoid enlarging or deforming the Silmat® tooling holes.
- Work the opposite direction to remove the Silmat®, carefully easing it off the guide pins. Do not use a sharp instrument and/or grab one corner and pull it off the guide pins because it can cause damage to the Silmat® tooling holes.
- If the same Silmat® is removed and then reinstalled on a socket, the Silmat® should remain in the same orientation with the same side facing the Contact Set. Installing either the Contact Set or the Silmat® upside down may impact performance.

Socket with AR200 or AR300 Contact Systems (Contact Set and Silmat®) Assembly and Maintenance Instructions (Continued)

Assembly of Socket to PCB:

- Assure that the test site PCB pads and immediately surrounding surfaces are clean and dry and free of contaminants and any other residues. If necessary, clean the PCB pads with a brush and blow with compressed air.
- Place the socket's alignment pins into the corresponding holes in the PCB.
- Secure the socket to the PCB and stiffener (if applicable) using the mounting screws or fasteners. Assure that the socket is firmly seated and coplanar with the PCB.

Removal & Storage:

- Remove the socket body from the PCB and store with the contacts attached in the protective packaging provided. Do not allow multiple sockets to rub against each other.
- If the contacts are separate from the socket body, always keep them contained and protected in the clean compression packages provided. This will keep them from being touched or damaged and prevent the accumulation of dust and debris.
- It is recommended to leave the socket assembled to the PCB whenever possible to keep the contacts clean and free of contamination. Only remove the contacts when extra cleaning is required or when the contacts need to be replaced.
- While the socket assembly remains attached to the PCB, it's recommended to store it without a DUT in the socket so the contacts remain unactuated during that time, which will help extend the life.

Handling & Cleaning

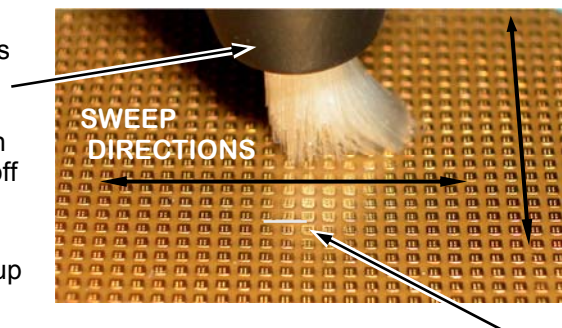
Contact Set:

- Always handle by the outside edges and avoid touching the top and bottom of the contacts.
- Use compressed air to blow dust and debris from the top and bottom of the contacts prior to use and assembly.
- It is recommended to leave the contacts assembled on the socket as long as possible. However, if cleaning is necessary after a number of actuations to remove difficult contaminants or solder residue, remove the contacts from the socket, taking note of the orientation with the Silmat®, and clean both sides (tips and tails) of the Contact Set with a fiberglass or bristle brush. Isopropyl alcohol may also be used to clean the Contact Set.

Important: Cleaning using brushes and isopropyl alcohol is for the Contact Set only and should never be used on the Silmat®. If cleaning chemicals are used on the Contact Set, it must be completely dry prior to installing with the Silmat®.

- When using a brush to clean the Contact Set, always brush in a sweeping motion across the contacts in one direction and then do the same in the perpendicular direction. Always brush both the top and bottom of the Contact Set and blow off any cleaning debris with compressed air prior to use and assembly.

Important: Be sure no cleaning debris is picked up by the Silmat® material.



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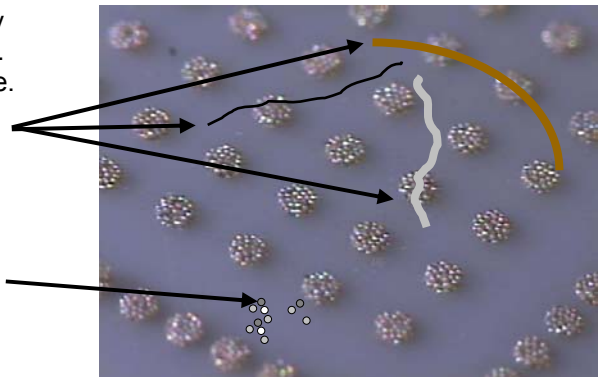
Silmat®:

- Always handle by the outside edges and avoid touching the top and bottom of the conductive columns which should have protruding “buttons” of conductive particles.
- Important: Do not touch or rub the conductive columns or the buttons could be damaged.
- Never use a stiff/wire brush on the Silmat®.
- Never use any alcohol or cleaning chemicals on the Silmat®. If the Contact Set or PCB is cleaned with chemicals, always be sure they are completely dry prior to touching the Silmat®.
- Use compressed air to blow dust and debris from the top and bottom of the contacts prior to use and assembly.
- If there is debris that cannot be removed by air, use a soft animal hair brush or a Post-it Note with light adhesive to gently remove any remaining debris. It may also be helpful to use a microscope and tweezers to remove some contaminants.
- Note: Some loose particles from the Silmat® conductive columns are common and do not impact functionality. If there is excessive particle dispersion, please contact Aries.

Possible Issues & Troubleshooting

Debris and/or obstructions – Signals may be impacted by various types of debris or obstructions (hair, fibers, etc). These should be removed by compressed air if possible. If necessary, the Contact Set may be cleaned or brushed. However, the Silmat® should never be cleaned or brushed and only air should be used and/or careful manual removal of contaminants.

Note: Some amount of loose particles on the Silmat® is normal and won't impact functionality.



Solder residue and oxide migration – The amount of transfer may vary by the type of device and type of solder and it may build up on the Contact Set tips over high numbers of device insertions and cause an increase in contact resistance. The Contact Set tips may be cleaned with a brush to remove residue and oxides. (Note: Since the Silmat® does not touch the device leads, it should not accumulate solder residue and should not need to be cleaned.)

Over/under actuation – This may cause poor/inconsistent test results and possibly impact contact life. It's important to stay within the recommended compression operating range. It's also important to eliminate any PCB flex/deflection and maintain coplanar actuation of the contacts.

DUT mis-registration – Over or under-sized devices compared to nominal specs may cause mis-registration with the contacts and impact test results. It could also cause mis-insertions and non-coplanar actuation which could damage the contacts. Assure devices are within design tolerances.

DUT mis-placement – Device mis-insertions can cause non-coplanar actuation and potentially damage the contacts. The DUT should be inserted appropriately into the socket and actuated in a coplanar manner.

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Contact mis-orientation – Some custom contact designs are not keyed; therefore, extra attention must be taken to ensure the contacts are assembled in the proper orientation to match asymmetrical patterns. The top and bottom should always stay the same throughout the life of each component as well as the A1 position. Also be sure to always install the contacts in the appropriate sequence with the top of the Contact Set facing the socket and DUT and the Silmat® facing the PCB.

Contact damage – It is important to compress, handle and maintain the contacts according to recommended guidelines to avoid premature damage that may shorten the operating life. If damage occurs, replacement of new contacts is very fast and easy according to the instructions.

Contact end of life – Test results should be monitored to determine appropriate maintenance intervals for the contacts (i.e. decreased yields, increased contact resistance, etc.). When test results do not improve by cleaning the contacts, then the contacts are likely worn beyond their operating life and they should be replaced. The replacement process is very fast and easy according to the instructions.