Care and Handling

smiths interconnect

Connector Interfaces:

Interface Cleanliness - Clean Interfaces prolong connector life and produce more accurate, repeatable measurements. The use of connector end-caps to protect the cables and adapters when not in use is recommended.

Interface Cleaning Procedure:

1. Solvents: Connector Insulators, support beads, and seals are susceptible to solvent damage. Solvents can product permanent physical and electrical damage. Isopropyl Alcohol is recommended for cleaning interfaces.

It should be noted that connector interfaces should not be immersed in solvents of any kind because solvents can become trapped within the connectorized assembly. Trapped fluids can cause SWR, Phase, and Insertion Loss problems.

2. Applicators: Fibrous or Abrasive applicators can contaminate and even damage Interface surfaces. Clean lint free swabs should be used. They need to be sharp enough and hard enough to remove dirt and debris without damaging surfaces and/or dislodging center pins.

3. Method: Dip a clean lint free swab in clean isopropyl alcohol. Press excess alcohol out of swab on a clean lint free Towel. Wipe the interface components as required to clean the interface. Blow-dry the interface with clean compressed air. Re-inspect the connector to verify that the interface is clean and ready for additional inspection procedures and interface gauging prior to use.

Interface Gauging - Incorrect center pin depths can produce inaccurate measurements and in the case of protruding cent pins can damage test devices, adapters, and test ports. Frequent Interface gauging can detect problems before they can ruin mating devices (see table I for connector interface pin depths).

Table I: Connector Interface Pin Depths

Connector Interface	Reference Plane (in)	Specification
7mm	1	IEEE STD 287
N Male	0.210/-0.230	MIL-STD-348
N Female	0.903382	MIL-STD-348
3.5mm	0/-0.003	IEEE STD 287
2.92mm	0/-0.003	IEEE STD 287
2.4mm	0/-0.002	IEEE STD 287
1.85mm	0/-0.002	IEEE STD 287
SMA	0/-0.010	MIL-STD-348
TNC / BNC	0.913043	MIL-STD-348
TNC / BNC	0.902913	MIL-STD-348
7/16 Male	0.830703	IEC 169-4
7/16 Female	0.855215	IEC 169-4

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Recommended Coupling Torque - Incorrect torque can produce inaccurate measurements and over-torque coupling can damage test devices, adapters, and test ports.

Torque wrenches should be utilized to for all Mate/De-mate processes (see Table II for recommended coupling torque values).

Table II: Recommended Coupling Torque

Interface Type	Coupling Torque
7mm, N	12 in-lbs
3.5mm, 2.92mm, K®, 2.4mm, 1.85mm	8 in-lbs
SMA, TNC	5 in-lbs

Cable Routing:

Bend Radius - Care should be taken to avoid over-bending test cables beyond minimum bend radius guidelines. Over-bending can force cable center conductor off-center, and can force the outer conductor out of round even to the point of kinking and fracture. Over bending results in degraded IL and SWR performance. It should also be noted that coiling cables at small diameters could force connector center-pins to protrude beyond required interface dimensions.

Twisting - Twisting test cables should be avoided at all times. Excessive twist can damage cable assembly at the cable/connector junction or even mid-cable depending on how the twist is applied. Lower level twist can cause measurement problems as well. Inducted stresses on test ports and device ports can damage the ports. Low level stresses can cause connections to loosen up. When routing cables always connector any right angles first.

Cable Assembly Mate/De-Mate Process:

Interface Alignment - Contact Pins and Dielectrics can be damaged if misaligned connectors are mated. Make sure that mating interfaces are parallel and on center during Mate/De-Mate cycle.

Interface Rotation - Plating and surface finish of outer and inner contacts can be damaged if connector bodies are allowed to rotate during Mate/De-mate cycle. Use wrench flats on connector bodies to keep them rotationally stationary while rotating coupling nut during Mate/De-Mate.

Minimized Load Configuration - Allow test cable to assume natural bend configuration route between test port and device port. Loosen test port and device port connection when test configuration is largely different than test configuration. Route cable, connect device port loosely then tighten both port connections to recommended coupling torque (see Table II above). This method will minimize most bend and twist loading issues.