



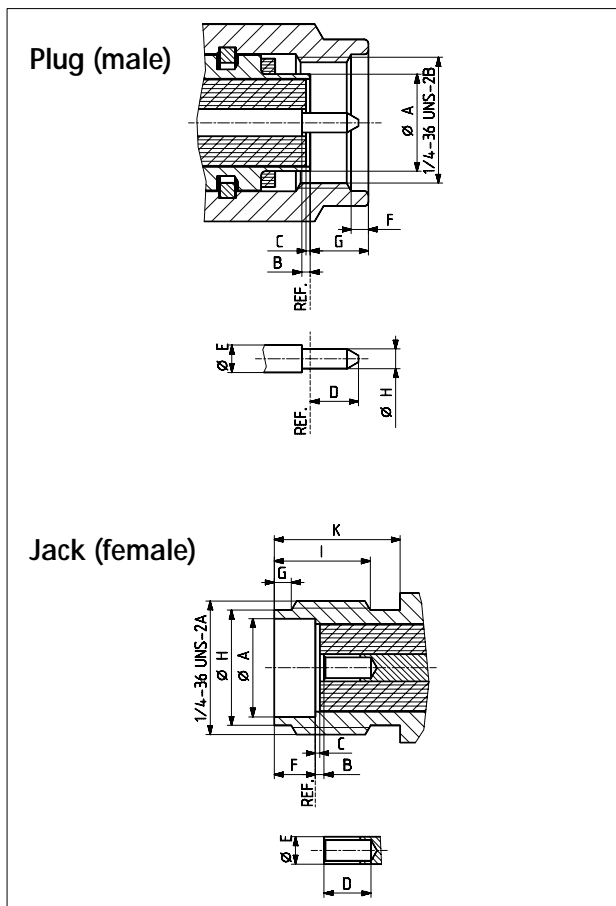
SERIES SMA SUBMINIATURE CONNECTORS

Description

SUHNER SMA connectors are precision connectors for microwave applications up to 18 GHz/ 26.5 GHz. They distinguish themselves through their high mechanical strength, high durability, high reliability and low VSWR.

SMA launchers are the preferred connection element for varied microwave circuits. There is a huge variety of applications for SUHNER SMA connectors, such as mobile communication, test & measurement, instruments, avionics, etc.

Interface Dimensions



Interface Dimensions in mm / inches

| | Plug | | Jack | |
|---|-------------|-------------|-------------|-------------|
| | min. | max. | min. | max. |
| A | --- | 4.59 / .181 | 4.59 / .181 | --- |
| B | 0.00 / .000 | 0.25 / .010 | 0.00 / .000 | 0.25 / .010 |
| C | 0.00 / .000 | 0.25 / .010 | 0.00 / .000 | 0.25 / .010 |
| D | --- | 2.54 / .100 | 2.67 / .105 | --- |
| E | 1.24 / .049 | 1.29 / .051 | 1.24 / .049 | 1.29 / .051 |
| F | 0.38 / .015 | 1.14 / .045 | 1.88 / .074 | 1.98 / .078 |
| G | --- | 3.43 / .135 | 0.38 / .015 | 1.14 / .045 |
| H | 0.90 / .036 | 0.94 / .037 | 5.28 / .208 | 5.49 / .216 |
| I | --- | --- | 4.32 / .170 | --- |
| K | --- | --- | 5.54 / .218 | --- |

Interface dimensions conformable to the Standards:

International: **IEC 169-15**
 Europe: **CECC 22110**
 USA: **MIL-C-39012, SMA**
Interface MIL-STD-348a/310
 GB: **BS 9210 N 0006**
 F: **NF-C-93563 (KMR)**

Technical Data

| ELECTRICAL DATA | MIL-C-39012 | | | | |
|---|--------------------|------------------------|----------|------------|----------|
| Cable type | | semi-rigid | | flexible | |
| Cable dielectric diameter (mm/ <i>in.</i>) | | 1.5 / .066 | 3 / .117 | 1.5 / .066 | 3 / .117 |
| Impedance | | 50 Ω | | | |
| Frequency range for interface | | DC ... 18 GHz | | | |
| VSWR (typical value) | | see table next page | | | |
| RF-leakage measured at 3 GHz (f in GHz) | 3.26 | ≥ 100 dB-f | | ≥ 60 dB | |
| Dielectric withstanding voltage (at sea level, in V rms, 50 Hz) | 3.17 | 1000 | 1500 | 750 | 1000 |
| Working voltage (at sea level, in V rms, 50 Hz) | | ≤ 335 | ≤ 500 | ≤ 250 | ≤ 335 |
| Corona extinction voltage (at 21 000 m/70 000 ft., in V rms, 50 Hz) | 3.22 | 250 | 375 | 190 | 250 |
| Working voltage (at 21 000 m/70 000 ft., in V rms, 50 Hz) | | ≤ 85 | ≤ 125 | ≤ 65 | ≤ 85 |
| RF withstanding voltage at 5 MHz (V rms) | 3.23 | 670 | 1000 | 500 | 670 |
| Insulation resistance | 3.11 | ≥ 5·10 ³ MΩ | | | |
| Contact resistance - centre contact - outer contact | 3.16 | ≤ 3mΩ ≤ 2.5 mΩ | | | |

| TYPICAL VSWR | FREQUENCY RANGE | | | | | CABLE GROUP |
|------------------------|-----------------|---------|-------|----------|--------|-------------|
| | 1 GHz | 2.5 GHz | 5 GHz | 12.4 GHz | 18 GHz | |
| straight connectors | 1.03 | 1.03 | 1.03 | 1.07 | 1.08 | Y3, Y11 |
| | 1.03 | 1.03 | 1.04 | 1.07 | 1.15 | Y5, Y12 |
| | 1.05 | 1.07 | 1.08 | | | U2, U4 |
| | 1.04 | 1.05 | 1.07 | | | U7, U9 |
| right angle connectors | 1.03 | 1.05 | 1.10 | 1.25 | | Y3, Y11 |
| | 1.03 | 1.05 | 1.08 | 1.17 | | Y5, Y12 |
| | 1.05 | 1.07 | 1.11 | | | U2, U4 |
| | 1.03 | 1.05 | 1.07 | | | U7, U9 |

| MECHANICAL DATA | MIL-C-39012 | Gold/CuBe and stainless steel | SUCOPLATE® / brass |
|---------------------------------|-------------|---|---|
| Recommended coupling nut torque | | 0.8 Nm ... 1.1 Nm / 7.1 in. lbs. ... 9.7 in. lbs (max. 500 matings) | 0.45 Nm / 4.0 in. lbs (max. 500 matings) 0.70 Nm / 6.0 in. lbs (max. 200 matings) 1.00 Nm / 8.8 in. lbs (max. 20 matings) ²⁾ |
| Coupling nut retention force | 3.25 | ≥ 270 N / 60.7 lbs | ≥ 270 N / 60.7 lbs |
| Contact captivation - axial | 3.12 | ≥ 27 N / 6.1 lbs | ≥ 27 N / 6.1 lbs |

2) While fastening the plug coupling nut, prevent the interface from rotating by holding the plug housing by hand.

| ENVIRONMENTAL DATA | MIL-C-39012 | |
|---------------------|-------------|---|
| Temperature range | | - 65°C ... +165°C / - 85°F ... +329°F |
| Climatic category | | IEC → 55 / 155 / 21 |
| Thermal shock | 3.20 | MIL-STD-202, Method 107, Condition B |
| Moisture resistance | 3.21 | MIL-STD-202, Method 106 |
| Corrosion | 3.13 | Saltspray test acc. to MIL-STD-202, Method 101, Condition B |
| Vibration | 3.18 | MIL-STD-202, Method 204, Condition D |
| Shock | 3.19 | MIL-STD-202, Method 213, Condition I |

MATERIAL DATA

| CONNECTOR PART | STANDARDS | MATERIAL | PLATING |
|------------------------|---|---|--------------------------------------|
| Bodies, outer contacts | QQ-C-530 ISO CuNi1Pb1P QQ-S-763 QQ-B-626 | beryllium-copper, hardened copper (spring) stainless steel brass | gold passivated SUCOPLATE® |
| Pin contact | QQ-C-530 QQ-B-626 | beryllium-copper, hardened brass | gold |
| Crimp ferrules | SUHNER® specification QQ-B-626 | copper brass | gold |
| Socket contact | QQ-C-530 ISO CuNi1Pb1P | beryllium-copper, hardened copper (spring) | gold |
| Insulators | | PTFE or PFA | |
| Gaskets | | silicone rubber | |

Material selection

Requirements

The pressure applied to the SMA outer contact area is extremely high:

| Coupling nut torque | Contact pressure |
|---|--|
| 1.0 Nm / 8.9 in. lbs recommended torque | 550 N/mm ² / 7.98 · 10 ⁴ psi |
| 1.7 Nm / 15.0 in. lbs coupling proof torque | 980 N/mm ² / 1.42 · 10 ⁵ psi |

Inadequate strength of connector body material will result in a slight deformation of the outer contact. Excessive reflections will occur as a result, above approximately 2 GHz.

SELECTION GUIDE

| | BERYLLIUM | STAINLESS STEEL | BRASS |
|---------------------------------|---|--|--|
| Material | beryllium-copper | stainless steel | brass |
| Plating | gold | | SUCOPLATE® |
| Features, applications | <ul style="list-style-type: none"> highest quality and reliability suitable for almost any application outperforms gold plated stainless steel | <ul style="list-style-type: none"> suitable for direct mounting on aluminium panels | <ul style="list-style-type: none"> best price/performance ratio for commercial applications only |
| Recommended coupling nut torque | 0.8 Nm ... 1.1 Nm / 7.1 in. lbs. ... 9.7 in. lbs (max. 500 matings) | 0.8 Nm ... 1.1 Nm / 7.1 in. lbs. ... 9.7 in. lbs (max. 500 matings) | 0.45 Nm / 4.0 in. lbs (max. 500 matings) 0.70 Nm / 6.0 in. lbs (max. 200 matings) 1.00 Nm / 8.8 in. lbs (max. 20 matings) |

Some connectors may have a specification that differs from the above mentioned data.