



SERIES SMA SUBMINIATURE CONNECTORS

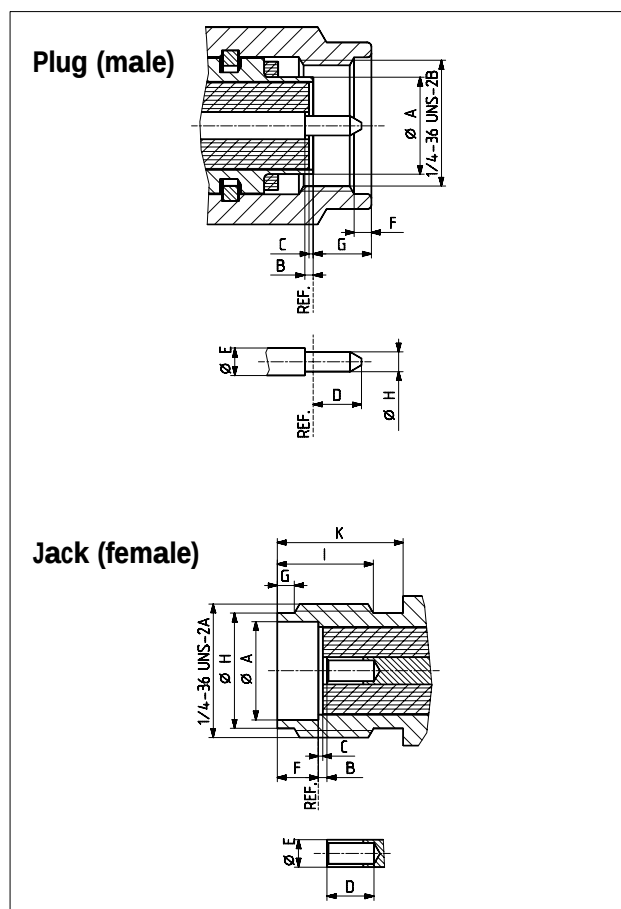
Description

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	$\geq 5 \cdot 10^3$ M Ω			
Contact resistance - centre contact - outer contact	3.16	≤ 3 m Ω ≤ 2.5 m Ω			

TYPICAL VSWR	FREQUENCY RANGE					
CONNECTOR TYPE	1 GHz	2.5 GHz	5 GHz	12.4 GHz	18 GHz	CABLE GROUP
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	- highest quality and reliability - suitable for almost any application - outperforms gold plated stainless steel	suitable for direct mounting on aluminium panels	- 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.