

Coaxial Connectors Selection Guide

SERIES	meaning of the acronym	max. frequency	Z Ω	The max. frequency depends also on the cable that is assembled to the connector and on the type of connector (straight or right angle). Usually the max. limit is imposed by the first way of propagation made by the connection, by decreasing the connector diameter the frequency increases					
BMA SBMA	Blind Mate Small B. M.	22 GHz	50	for special applications, for example automatic tests where the the coupling can't be made by screwing the connector but only by connecting with holding clips so it keeps a very high reliability even at high frequencies it was made especially for avionics or for plug-ins within main-frames.					
OSP-OSSP MaCom									
BNC	Bayonet Navy Conn. or Bayonet Neil Concelman (inventor)	1 GHz , max 3 GHz see note	50 and 75	very good low VSWR connector, it was developed in the 40s for military purposes, the limitation in frequency is due to a not secure contact of the internal pin and the ground because it has a bayonet connection system but the impedance is still good up to 10GHz with a very good Return Loss.					
N	Navy or Paul Neill Bell Lab. (inventor)	12 - 18 GHz (for 50Ω)	50 and 75	It was born in the 40s for military systems up to 4GHz, it was the first connector able to work in microwave frequencies, it was then improved to work up to 12GHz and 18GHz for special purposes, it is a very successful connector for any kind of application, internal and external, professional and industrial, medium power etc.					
MCX	micro coax	6 - 8 GHz	50	Pressure connection, the MCX can be confused with the SMB that is very similar, it is for internal use, The MMCX has a very good behaviour up to 8GHz					
MMCX	miniature mcx		50						
SMA	Sub Miniature types : A , B , C , S , Z	18 GHz	50	It was developed by Bendix and its first name was 3mm (60s), it is surely the most successful connector for microwave, it is available in many types and versions, even up to 26GHz, it is compatible with 3.5mm and K series (OSM = Omni Spectra)					
OSM									
SMB						4 GHz	50	snap-on coupling	They are similar, they are used mainly inside equipments and in limited spaces
SMC						8 GHz	50	threaded connection	
SMS						4 GHz	50	slide-on coupling, not very diffused	
SMZ						~ 1 GHz	75	often used in radio link IFs, now disused	
SSMA	Small SMA	35 GHz	50	slightly smaller than SMA it is now seldom used (OSMA Omni Spectra-MaCom)					
SSMB	Small SMB	4 GHz	50	slightly smaller than SMB					
GR 874 GR 900	General Radio	8 GHz	50	first sexless connector at the beginning of the 50s. born in the 60s, seldom used					
			75						
Dezifix A , B , C	Rohde & Schwarz		50-60 75	they were developed in the 60s, their unique particularity lies in being sexless, so there aren't male or female types because the connection is not made by insertion but by the frontal touch of the internal pins. APC ® = Amphenol Precision Connector					
PC 7 APC7 7 mm	Precision Connector or Amphenol P C 7mm	18 GHz	50			it is used manly for lab and professional applications like network analyzers because it is highly precise			
C	Concelman (inventor)	11 GHz	50	it is a bigger version of the BNC series always with bayonet connection and size similar to an N, it was born for military purposes now is seldom used					
HN		4 GHz	50	quite similar to an N, suitable for high voltages and environments with strong vibrations, it was born for military purposes now is seldom used					
SC		11 GHz	50	bayonet connection, 5KV dc , for high voltages					
SHV	Safe High voltage								
TNC	Threaded N. Concelman	11 - 12 GHz	50 (75)	one of the best, it combines the N frequency qualities with the small size of BNC, it is refined and precise. It's a pity that it is little used and appreciated					
UHF		200 - 300 MHz	not defined	it was developed at Amphenol by C. Quackenbush in the 30s especially for use in radio frequency, maybe it was the first standard RF connector					
1.0 - 2.3	#	10 GHz	50	snap-on coupling, used in telecommunications, small size and low cost					
1.6 - 5.6	#	1 GHz	75	snap-on coupling,, used in telecommunications					
4.1 - 9.5	#	10 GHz	50	it is similar to the 7-16 but with smaller size, not frequently used					
7-16		5 - 7 GHz	60 75	it was born in Europe for power broadcast and outdoor applications, it was then adopted worldwide for cellular base station applications					
LC		1 GHz	50	for high power with big size, now it is replaced by 7-16, for military use					
FME		~ 300 MHz	50	with low performances, it is often used on mobile equipments and antennas					
1 mm	#	110 GHz	50	mainly used on network analyzers	developed by Agilent in the 80s				
1.85 mm		65 GHz			developed by HP in the 80s		the same	they are compatible	
V					developed by Wiltron in the 80s				
2.4 mm		50 GHz			HP - Amphenol				
OS-2.4					OS = Omni Spectra now MaCom				
2.92 mm		40 (46) GHz			generic name		they are the same product , also called SMK	they are compatible also with SMA	
K	K ® only Wiltron								
3.5 mm	32 GHz	it was developed first by HP, it is widely used instead of SMA when a better performances is needed over 18 GHz							
EIA Flanges		2.5	50	they have very big sizes from 7/8" to 6" (about 16 cm) suitable for broadcast powers often used with pressurised cables					

= If the number is only one it shows the inner diameter of the ground in mm eg. PC7 or 2.92 mm, if the numbers are two they indicate the outer diameter of the pin (jack or female), eg. 7-16 means 7mm the inner pin and 16mm the ground, the ratio will give the impedance of 50 Ω (or 75 Ω). Some connectors have different names due to the patent licenses ®