

# CONNECTOR TYPES BY FREQUENCY RANGE

## BRIEF OVERVIEW OF COMMON CONNECTOR TYPES

**BNC (Bayonet Neill-Concelman) Connectors** are used primarily with cable sizes of 0.150" to 0.250" OD. The quick connect/disconnect bayonet is particularly useful in test equipment. Applications include communication, medical equipment, instrumentation, and computer peripheral interconnections.

**SMA (Sub-Minature A) Connectors** are semi-precision 3mm high frequency connectors, originally used with 0.141" semi-rigid cable, but now produced for use with both flexible and semi-rigid cable from 0.047" to 0.250" OD with threaded coupling interfaces. SMA Connectors give repeatable electrical performance from 1 to 18 GHz (up to 26.5 GHz with enhanced versions), and are widely used in microwave systems where size reduction, minimum attenuation, and low VSWR are required.

**SMB (Sub-Minature B) Connectors** have a quick connect/disconnect interface mechanism, which offers good performance (up to 4 GHz) with low reflection under moderate vibration. Typical applications are in telecommunications, instrumentation, wireless, PC/LAN controls, and inter-broad or intra-broad connections of RF or digital signals.

**SMC (Sub-Minature C) Connectors** are similar to SMB connectors, but with a threaded coupling interface. Tighter control of the contact and insulator locations allow the SMC to operate up to 10 GHz. They are used primarily in microwave telephony and other non-military telecommunications requirements.

**TNC Connectors** are BNC connectors with threaded couplings and enhanced performance at higher frequency (0 to 11 GHz; precision types to 18 GHz), with low noise and better shock and vibration characteristics. These are commonly used in military and aerospace applications where performance is required under vibration.

**Type N Connectors** are generally used with coaxial cables ranging from 0.350" to 0.400" OD, with a threaded coupling. They exhibit low VSWR across a frequency range of 0 to 11 GHz (also available in precision types up to 18 GHz). The N Connector is the most popular standard size connector, with good vibration and environmental characteristics. Applications include test equipment, LANs, broadcast, satellite, and military communication equipment.

**UHF Connectors** utilize a threaded coupling interface and are typically limited to frequencies below 300 MHz due to their non-constant impedance. These connectors are used primarily in low frequency communication equipment such as CB radios and public address systems.

