

When choosing a connector, must consider the property requirement and the economic factor. The chosen connector must meet the requirements of systems and equipment at property and the requirements of value engineering at economy. Normally the consideration is mainly based on the following 4 aspects:

Connector interface (SMA, SMB, BNC etc).

Electric property, cable and cable installation.

Terminal style (PCB, Cable, Panel etc).

Mechanical structure and coating (Military, Commercial).

1. Connector Interface

The connector interface normally depends on its application, and meets simultaneously the requirements of electrical and mechanical properties.

Series BMA connectors are suitable for blind insertion connection in low power microwave system at frequency up to 18GHz.

Series BNC connectors with bayonet coupling are widely used in the interconnection fields of network system, instrument and computer at frequency lower to 4GHz.

Besides the screw coupling. The interface of series TNC connectors is similar as series BNC, which can be used at frequency up to 11GHz and have well performance at vibration condition.

Series SMA connectors with screw coupling are widely used in the military and civil fields of aviation, radar, microwave communication, digital communication etc, which have the impedance of 50 ohm and 75 ohm. If which is with flexible cable the use frequency will be lower than 12.4GHz, if with semi-rigid cable will be up to 26.5GHz. The 75 ohm will be used in digital communicating field more widely.

Series SMB connectors are smaller as SMA, with push on self latch structure, easy for rapid connection, and normally used in digital communication, which are the substitute of series L9 connectors. The 50 ohm is used at frequency up to 4GHz, 75 ohm up to 2GHz.

Series SMC with screw coupling are similar as SMB, which have the good mechanical performances and more wide frequency range, and mainly can be used in military and high vibration environment.

Using air to be insulation material of series N screw coupling connectors, which have the low cost, impedance of 50 ohm and 75 ohm, and can be widely used in regional net, medium transmission and test instrument.

Series MCX and MMCX connectors supplied by Coconn are the first choice for meeting the requirement of high density and smallization, due to their small size and high reliable contact, which will be used in wide range in the future.

2. Electric Property, Cable and Cable Installation

A. Impedance

The impedance of connector will be matching with the impedance of system and cable. It will be noted that not all of connector coupling meets the impedance 50 and 75. The unmatched impedance can lower the property of system.

B. Voltage

Assure use voltage not to over maximum voltage withstanding of connector.

C. The highest working frequency

Each type of connector has a highest limited frequency and some commercial or 75ohm design connectors have a lowest limited frequency. Besides electric performance every coupling style has its special properties, for example, BNC is with bayonet coupling, easy to mount, low cost, and widely used in low property electric connection. Series SMA and TNC with screw coupling and meet the connector requirements at high vibration environment. SMB is with the functions of rapid connection and disconnection and it will be more and more customer's good grace in the future.

D. Cable

Television cable with lower screening property is normally used in the system only considered impedance, especially used in television antenna.

Television flexible cable is a reform of television cable, which has the continuous impedance, better screening property, lower cost and can be bent, and is widely used in computer field. But which can't be used in the system needed high screening property.

Screening flexible cable removed inductance and capacitance is mainly used in instrument and construction fields.

Flexible coaxial cable with special performances is the normal cable for close communication. The coax means signal and earth conductor are on the same axis, outer conductor made of precise braided wires, and this cable also called braided coaxial cable. This cable has a good screen effect for center conductor. The screen effect is depend on the type of braid wire and the thickness of braid. Besides which has the feature of high voltage withstanding, this cable also is suitable to used at high voltage frequency and high temperature condition.

Using tube housing to substitute the braid for semi-rigid coaxial cable, it effectually compensate the disadvantage of lower screen effect for braid cable at high frequency. Normally semi-rigid cable is used at high frequency.

E. Cable Installation

There mainly are two methods for connector and cable installation:

- (1) Solder center conductor, screw shield layer.
- (2) Crimp center conductor, crimp shield layer.

The other methods will be resulted by above two methods, such as solder center conductor, crimp shield layer. Method (1) is used in the occasion without any special installation tool. Due to using crimp installation method, it can get high work efficiency, reliable installation property and can assure that all of the connector cable assemblies installed by special designed crimp tool are similar. So the installation method of soldering center conductor, crimping shield layer should be got more and more wide use with the progress of low cost tool.

3. Terminal Style

The connectors supplied by Coconn can be used to connect with RF coaxial cable, PCB and other connection interface. In practice the definite type of connector will match with the definite spec of cable. Normally the small diameter cable will be connect with the miniature RF connectors of SMA, SMB, SMC etc. Refer the cable dimension list, can choose the suitable connector.

4. Mechanical Structure and Coating

The structure of connector will greatly effect its price. The design of each type of connector will include the military specification and commercial specification. The military connector will be manufactured per MIL-C-39012 with copper parts, PTFE insulation, gold plating and has high reliability. The commercial connector design used the pinchbeck material, such as cast copper, polypropylene insulation, silver plating etc.

Always using copper, beryllium copper and stainless steel to be the materials of connector metal parts, center conductor will be gold plated. It is because that gold plating is with low resistance, erosion proof and good leakproof properties, so the military specification requires gold plating on the metal parts of SMA and SMB, silver plating on N, TNC and BNC. But because silver plating is ease to be oxidized, many customers would like the nickel plating.

The connector insulator always is made by PTFE.

Among them, PTFE has the best insulation property. But the production cost of which is higher than other's.

The material and structure choices of connector can effect the processing and processing efficiency of connector parts, so customer should choose the reasonable connector at the rate of property and price based on his practical environment.