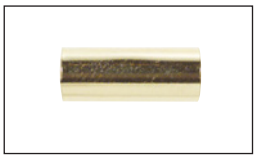
Anatomy of a Coaxial Connector

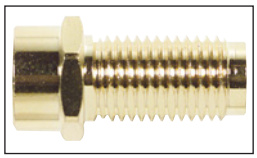
There are a wide variety of coaxial connectors available today. These connectors are offered in numerous interface types and attachment methods. Illustrated below are some common elements and functions shared by most of these coaxial connectors.

Crimp Ring



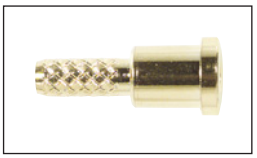
Attachment sleeve to cable outer conductor.

Coupling Body



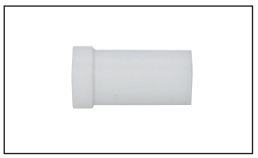
Attachment mechanism to mating connector.

Outer Conductor



Outer conducting element for signal transmission.

Dielectric Support



Non-conductive spacer between center and outer conductor.

Center Conductor

Center conducting element for signal transmission.

Building Your Own Coaxial Cable Assembly

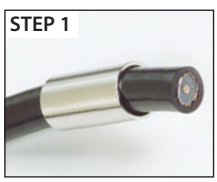
In order to successfully build your own coaxial cable assembly, you must make the following decisions:

1. **Select a cable type**
   Many parameters come into play in making this decision from electrical performance properties such as impedance, shielding and attenuation to mechanical properties such as diameter, center conductor construction (solid vs stranded) and jacket material. A selection of the most commonly used cable is listed on page 63.
2. **Select a connector type**
   Numerous connector interfaces exist such as BNC, TNC, SMA, F or RCA to name just a few. Each has a different application and come in both male and female versions. A selection of the most popular types is listed on pages 64-66.
3. **Select an attachment method**
   In general, there are three basic methods to attach a coaxial connector to a coaxial cable. They are crimp, clamp and twist-on. Each of these methods is illustrated below.
4. **Select a tool**
   If a crimp attachment method was selected then a crimp tool will be needed. The crimp cross reference chart on page 67 will assist you in selecting the correct tool.

Crimp Method:

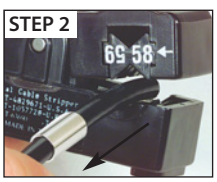
This is by far the most common connector attachment method. In this case the cable shield is crimped to the connector using the crimp ring. The connector center conductor is attached to the cable center conductor by crimp or solder.

STEP 1



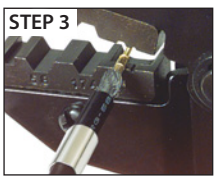
Cut cable to length and slide crimp ring onto free end.

STEP 2



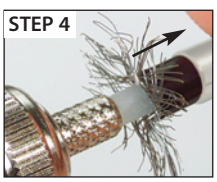
Strip free end with Coaxial Cable Stripper.

STEP 3



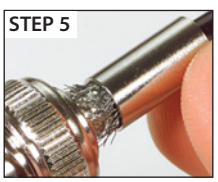
Slide pin onto center conductor making sure base of pin meets dielectric. Crimp in place.

STEP 4



Fan braid and slide plug over pin.

STEP 5



Pull crimp sleeve over braid and ring.

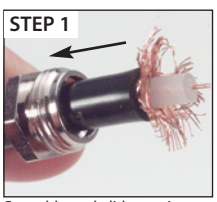
STEP 6

Crimp in place.

Clamp Method:

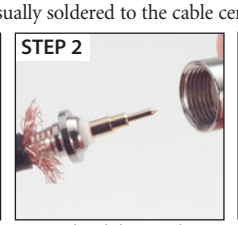
The clamp method is often used for weather exposure applications or when crimp tools are not available. In this case the cable shield is clamped between the connector body and back nut. The connector center conductor is usually soldered to the cable center conductor.

STEP 1



Cut cable and slide nut into position. Strip and flair braid.

STEP 2



Position braid clamp and crimp or solder pin.

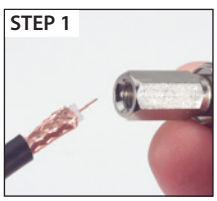
STEP 3

Attach main body to back nut.

Twist-On Method:

This method is most often used in field applications due to it's simplicity and no need for special tools.

STEP 1

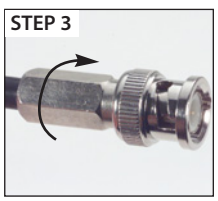


Prepare cable with strip tool.

STEP 2

Position connector body.

STEP 3



Twist connector body onto cable.

Crimp Tool:

When using a crimp connector, HT330K T330K tool kit can be a valuable item (page 67). This kit contains dies for all the commonly used crimp sizes. In addition, this kit comes complete with a cable cutter and a rotary cable stripper - helpful tools for building a cable assembly.

Plug or Jack:

A PLUG utilizes a center pin = MALE GENDER

A JACK utilizes a center socket = FEMALE GENDER

See The Video

www.L-com.com/Videos/A19

Solid or Stranded:

SOLID center conductor: best attenuation but somewhat stiff.

STRANDED center conductor: more flexible but slightly higher attenuation.

What our customers are saying. . .

"The info in your catalog about how connectors work, how to assemble connectors and so forth is invaluable. It's helped me figure things out many times." **- Rich B.**