

# BASIC TELEPHONE AND VIDEO MODULE by Datacomm Electronics



The **Basic Telephone and Video Module** (Model #70-0020) is used to distribute both telephone service and video (cable, antenna) signals from one central location.

It is designed to snap easily into either **Home Command Center Wiring Boxes** (Model #70-0010 or 70-0090)

Includes:

Telephone

- Add up to 10 telephone outlets, each with up to 4 separate telephone lines
- Expansion port for additional modules
- Color-coded 110 style punch-down connections
- Meets EIA/TIA Standards for T568-A

Video

- Distribute (1) incoming video signals to up to 8 different locations
- Insertion Loss:  $\pm$  -1-3 dB (depending upon frequency)
- Isolation: - 20 dB
- Return Loss: - 10 dB
- Frequency: 5-1000 MHz (1 GHz)

*The installation of your Basic Telephone and Video Module can be divided into four (4) steps.*

- 1) Mounting the Telephone and Video Module
- 2) Running the Cable & Wire
- 3) Terminating (or making) the Connections
- 4) Testing

Each step will be covered in detail. However, for questions, call our Help Line at **(800) 626-6445**.

## Tools Needed for Installation

- Cable Cutter & Wire Stripper
- Cable Clamps for Coax & Telephone Wire
- Video Connectors
- Connector Crimping Tool\* (optional)
- Telephone 110 Style Punch-down tool

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## **MOUNTING THE TELEPHONE & VIDEO MODULE**

- 1) Determine the most convenient location for the module inside the Home Command Center Box (Model #70-0010 or 70-0090).

(Note: The best location will depend on if there are already modules inside the Home Command Center Box.)

- 2) Once the best location is determined, place the module inside the box and align the 4 "legs" of the module to the open holes on the back of the wiring box where the module should sit inside the box.
- 3) Gently push the "legs" of the module into the open holes on the Home Command Center Box. The modules should snap easily into place.



## **RUNNING CABLE & WIRE**

### **Video Cable**

- 1) Run the Video coaxial Cable RG6 or RG6 Quad Shield (RG6 Quad is preferred) from each of the individual room locations to the command center (known as a "home-run") leaving about 12" extra on each end. When running the cable, try NOT to kink or bend the cable more than a 4" radius or the signal could be affected. (hint: never bend the cable over 1/2 its diameter at any point). When running the wire through sole plates, top plates or fire blocks it is recommended that you drill a 1" hole and run two or three cables through the same hole, and fill this hole later with expanding foam insulation.
- 2) Mark each cable with the room location for easy identification later.
- 3) Bring the Input signal cable to the box using the same method used for the rooms above. If you have both TV antenna(s) and cable, make sure to run cables for each of them.
- 4) Mark the input cables for easy identification later.

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### ***RUNNING CABLE & WIRE***

#### **Telephone Cable**

- 1) Run the 8 conductor Category 3 or higher (this cable has 4 pairs of twisted wires inside of a single jacket) cable from each of the individual room locations to the command center (known as a "home-run") leaving about 18" extra on each end. When running the cable, try NOT to kink flatten or bend the cable too sharp or the signal could be affected. (hint: do not bend the cable over 1/2 its diameter at any point). When running the wire through sole plates, top plates or fire blocks, it is recommended that you drill a 1" hole and run two or three cables through the same hole, and fill this hole later with expanding foam insulation.
- 2) Mark each cable with the room location for easy identification later.
- 3) The telephone input cable is run from the junction box (usually provided by the telephone service provider) to the Home Command Center using the same technique as from the individual room locations.
- 4) Mark each cable with the telephone line number for easy identification later.

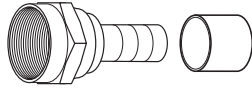
# BASIC TELEPHONE AND VIDEO MODULE

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### TERMINATING THE CONNECTIONS

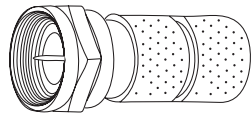
#### Choosing the Video Cable Connectors

There are several types of connectors which can be used to terminate the coaxial video cable. There are "Crimp-on" style, "Twist-on" style, and "Compression" style. All of these types are available from your Home Command Center supplier. You need to choose the connector that is best for your needs. The cable preparation is the same for all three types of connectors.



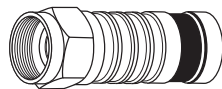
#### "Crimp-on" Coax Connectors

These connectors are designed for the type of coaxial cable used in your installation. The cable is pushed into the connector and then the crimp ring is compressed using a crimping tool. This prevents the cable from coming out of the connector and makes electrical connection between the coax and the connector. Care must be taken not to over crimp or squash the connector when crimping the ring as this could affect the video signal.



#### "Twist-on" Coax Connectors

These connectors like the crimp-on connectors are designed for specific cable. When installing this connector, the cable is screwed into the connector until the foam insulating material is visible at the base of the connector. With this connector, NO special installation tool is needed, the connection to the cable is more positive than the crimp-on connector, it is easier for the novices to install.



#### "Compression" Coax Connectors

This is the connector of choice for most professional installers. Although it is more expensive, it has a much more positive electrical connection and harder to pull off than the crimp-on connector and is much faster to install than the twist-on connector. The connector has a PVC gasket connected to a ring which is slid onto the coaxial cable, the cable is then seated into the connector and placed into the special compression tool. This tool then wedges the two pieces of the connector together attaching it to the cable. This makes a tough and weather resistant connection.

#### Stripping the Coaxial Cable

- 1) Using a cable stripper or a sharp knife, strip the outer jacket of the coaxial cable off 3/4" from the end. (figure A)
- 2) Peel the shielding material away from the foam center conductor even with the outer jacket and trim flush. (figure B)
- 3) Strip the foam insulating material away from the center conductor leaving about 3/8" of the foam showing. (figure C)



figure A



figure B

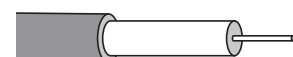


figure C

# BASIC TELEPHONE AND VIDEO MODULE

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### TERMINATING THE CONNECTIONS

#### Attaching the Video Connectors

Now is the time to attach the video connectors you have chosen. The video connectors are called "F" connectors. How they are attached depends upon the ones you have chosen.

**"Crimp-on" coax connectors.** There are two basic types of crimp-on "F" connectors. One with an attached crimping ring and one with a separate crimp ring. The important thing to remember is that the connector has a separate crimp ring, make sure you slip it on the cable before you push the connector onto the cable.

- A) Push the connector onto the cable making sure that the white insulating material is flush with the bottom of the inside of the nut (the part that threads onto the splitter). (*figure 2 Arrow*)
- B) Using a crimping tool compress the ring against the PVC outer jacket so that it holds the connector securely. (**note: do not over crimp or squash the connector or the signal may be affected**)
- C) Using a cable cutter, trim the excess center conductor leaving it about 1/8" longer than the front of the nut. (*figure 2*)

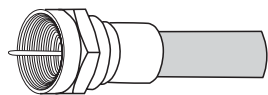


figure 1

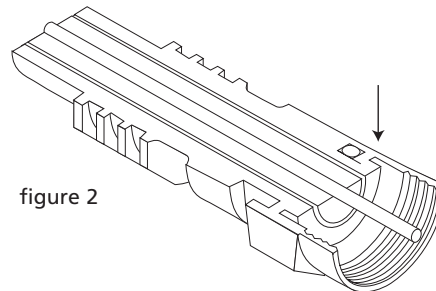


figure 2

**"Twist-on" coax connectors.** The twist-on "F" connectors require NO special tools.

- A) Push the connector onto the prepared coaxial cable and twist the connector clockwise.
- B) Continue twisting until the white insulating material is flush with the bottom of the inside of the nut (the part that threads onto the splitter). (*figure 2 Arrow*)
- C) Using a cable cutter, trim the excess center conductor leaving it about 1/8" longer than the front of the nut. (*figure 2*)

**"Compression" coax connectors.** These connectors are the professionals choice, however, for the do-it-yourself person the special equipment is expensive.

- A) Push the compressing ring onto the prepared cable and insert into the connector body.
- B) Using the compression tool, position the connector and cable into the tool.
- C) Compress the handles of the tool until the jaws release.
- D) Using a cable cutter, trim the excess center conductor leaving it about 1/8" longer than the front of the nut. (*figure 2*) Attach "F" connectors to ALL the video cables you have run to the Home Command Center.

#### Connecting the Video Cables to the Home Command Center

- 1) Attach the Input Cables to the Video Splitter. Insert the center conductor into one of the Input "F" connector receptacles on the top of the command center and hand tighten. Do the same with any other signal input cable you may have run.
- 2) Insert each room cable to one of the output connectors on the top of the command center and hand tighten.

**Note: It is important that if not all of the output connections have cables attached, you must terminate with a 75 Ohm Video Terminator plug. If you do not terminate the open connections, you may get interference (standing waves) on the signal.**

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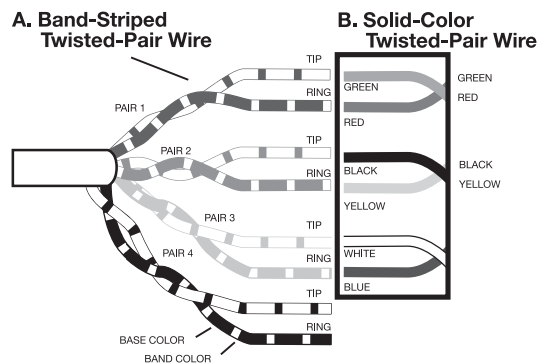
### TERMINATING THE CONNECTIONS

#### Telephone

The telephone connections are very simple to make, however, it does require a special punch-down tool. This can be as simple as a plastic "110" style punch-down tool if you have only a few connections or a professional punch-down which not only punches the wire into the contacts, it also trims off the excess cable. There is no need to strip the cable as we did for the video connection because the "110" style connection slits the insulation and makes contact with the wire. The wire used in these installations is a **UTP** (unshielded twisted pair) cable preferably CATEGORY 3 or higher. Although it is not necessary to run CAT 5 wire for plain old telephone systems (POTS), it is much more economical to run the cable while it's easy to do so than try to change it at a later date. CAT 5 cable can be used for both telephone analog signals as well as digital signals and the data transfer speeds can be up to 25 times faster than POTS wiring, it will only transfer data as fast as its slowest component in the system.

**CAT 5 Cable.** This wire consists of 4 color coded pairs of cables, one a solid color and the other white with a colored stripe. Each of these pairs may be used as a separate telephone line in residential installations.

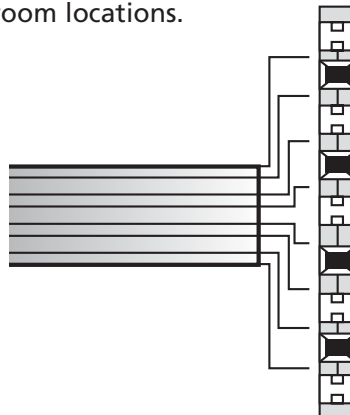
- Pair 1 = Blue + Blue/White
- Pair 2 = Orange + Orange/White
- Pair 3 = Green + Green/White
- Pair 4 = Brown + Brown/White



#### Attaching the Telephone Cable

The telephone is intended to be fed through the knock-outs on the side of the Home Command Center.

- 1) Pull the input cable through the knock-out and lay it next to the input side (the right side where there is only 1 connector) of the distribution module.
- 2) Determine the length and cut the excess cable leaving about 2" extra to attach to the connector strip.
- 3) Remove about 1-1/2" of the outer jacket. This will expose the four (4) pairs of cable.
- 4) Lay the cable next to the connector strip with the color coded tips. The cable wires are arranged in order from top to bottom Blue/white, Blue, Orange/white, Orange, Green/white, Green, Brown/white, Brown. Lay the individual wires on top of the proper connector. (**take care as to not untwist the wires, just spread them apart a little**) With your punch-down tool, push the wire into the connector and trim off the excess.
- 5) Repeat steps 1-4 for each of the room locations.



#### 110 Block Wire Color Coding

- Pair 1 = Blue + White, Blue
- Pair 2 = Orange + White, Orange
- Pair 3 = Green + White, Green
- Pair 4 = Brown + White, Brown

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### TESTING THE SYSTEM

#### Testing Video Connections

With all of the connections made at the Home Command Center and the wall plates installed in the rooms, it is time to check the system to see how it works.

- 1) You will need a TV set, small piece of coaxial cable with connectors on each end, and a coaxial coupler.
- 2) Disconnect the video input cable from the command center and couple it onto the piece of coaxial cable attached to the TV set. Turn the TV on and observe the TV signal. It should be a clear beautiful signal. Next go to one of the rooms that has a video Cable running to it and do the same thing. You should get the same results. If the results are not good, you should check the following items:

| Symptoms                     | Suggested Cure   |
|------------------------------|--|
| <b>Weak signal at input</b>  | <ul style="list-style-type: none"><li>• Check the connections on the input cables.</li><li>• Make sure the cable is not stapled or pinched.</li><li>• Call your service provider to correct the problem.</li></ul>   |
| <b>Weak signal in rooms</b>  | <ul style="list-style-type: none"><li>• Check the connections on the output cables.</li><li>• Make sure the cable is not stapled or pinched.</li><li>• The run may be over 100 feet and should be amplified.</li></ul>   |
| <b>Wavy lines in picture</b> | <ul style="list-style-type: none"><li>• There are probable open connectors, terminate ALL open connectors.</li><li>• There may be a broken ground connection. Make sure all connectors on the cable are secure.</li></ul>  |
| <b>Black bar in picture</b>  | <ul style="list-style-type: none"><li>• There are probable open connectors, terminate ALL open connectors.</li><li>• There may be a broken ground connection. Make sure all connectors on the cable are secure.</li><li>• Make sure that the coax is not running adjacent to electrical wires.</li></ul> |

*Good Clean Video signal is very important for many of the appliances to work correctly. If these symptoms and cues don't solve your problems, you may have to call a professional.*

#### Testing Telephone Connections

The telephone connections are easy to trouble shoot. Either the telephone works when plugged in or not. If the phone does not operate, check the following items:

| Symptoms                            | Suggested Cure   |
|-------------------------------------|--|
| <b>No dial tone</b>                 | <ul style="list-style-type: none"><li>• Check the punch-down connections at the command module.</li><li>• Check connections at wall plate.</li><li>• Make sure the cable is not stapled, kinked or broken.</li></ul>   |
| <b>Dial tone but can't dial out</b> | <ul style="list-style-type: none"><li>• Check the tip and ring wires at the command module, may be reversed.</li><li>• Check the phone connection at the input, service provider may have miswired the junction box. If the problem is at the modular jack on the command module, call the service provider.</li></ul> |

Now is the time to use the expanding foam insulating material and fill all of the holes around the cables you have pulled. This prevents heat loss and slows a fire if there should be one. Enjoy your telephone and video signals and Thank you.

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## ADDITIONAL EXPANSION MODULES AND ACCESSORIES ALSO AVAILABLE:

**70-0070**      **6 Port Telephone Expansion Module**  
Telephone = 1-4 Lines input / 6 outputs w/ up  
to 4 lines per output  
Expansion port (RJ31X) for additional modules  
Color Coded 110 Style Punch-down connections  
Meets ISO/IEC Standards  
Size: 3.0" X 9.5"



**70-0030**      **8 Port Passive Data Module for CAT 5e**  
8 HUB RJ45 connectors for I/O  
Meets EIA/TIA Standards for T568A  
Size: 3.0" X 9.5"



**70-0045**      **Security (blank) Bracket**  
Heavy Duty Steel  
Size: 3.187" X 9.5"



**UVA20**      **UHF/VHF/FM 20dB Amplifier**  
Band Width: 47 - 900 MHz  
Gain: 20dB (VHF), 23dB (UHF)  
Noise Figure: 5.4dB - 6.4dB  
FM Attenuator Trap (switchable)  
I/O Ports: 75 Ohm



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