

Chapter 3 – Installing PhoneNET System Cabling

This chapter gives instructions for installing a daisy chain, backbone, passive star and active star. Just as every network is different, the exact steps for installing your network will vary. The instructions in this chapter illustrate some example installations. You may need to combine information from two or more sections to create your network.

Each section begins by listing the hardware you need to create the network. You always need one PhoneNET Connector for each network device. Most of the other wiring accessories are available from Farallon. For example, Farallon offers a Modular Cable Construction Kit to create custom cable lengths. See the Farallon Product Catalog for a complete list of PhoneNET System products. Many wiring accessories are also available from an electronics store.

You don't need any special tools to create a daisy chain, but you will need a few tools to create a backbone or star. A pocketknife is useful for stripping wire, and a small screwdriver is needed to wire wall jacks. You may also need wire cutters and a punchdown tool.

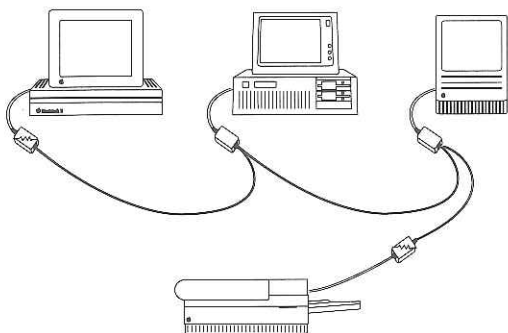
Installing a daisy chain

A daisy chain is easy to install. You need a piece of modular extension cable (with RJ11 plugs at both ends) to interconnect adjacent PhoneNET Connectors, and two RJ11-mounted terminating resistors.

1. Plug a PhoneNET Connector into the AppleTalk port of each network device.
2. Locate or make a piece of modular extension cable (with RJ11 plugs at both ends) long enough to link each PhoneNET Connector to the next, or use the 7-foot modular extension cable that came with the PhoneNET Connector.
3. Link each PhoneNET Connector to the next by plugging the modular extension cable into an RJ11 socket in each PhoneNET Connector. Repeat this step until all PhoneNET Connectors are linked.

Do *not* create a circle by linking the first and last PhoneNET Connectors together. The PhoneNET Connectors at each end of the daisy chain should have only one modular extension cable plugged into them. The other PhoneNET Connectors in the middle of the daisy chain should have two modular extension cables plugged into them.

4. Insert an RJ11-mounted terminating resistor into the unused RJ11 socket on the first and last PhoneNET Connectors of the daisy chain.



A daisy chain with RJ11-mounted terminating resistors properly installed.

5. Test the network by printing a document from each device, or by running diagnostic software such as CheckNET. See *"Testing to see that the network functions properly"* in Chapter 5.

Installing a backbone

To install a backbone you need wall jacks, modular extension cable, and enough telephone wall cable to reach each wall jack. The most reliable backbone is created by using one continuous length of telephone wall cable and wiring wall jacks *without* cutting the telephone wall cable.

The instructions below tell you how to create a backbone.

1. Pull one continuous length of telephone wall cable along the route of your network.
2. Position the wall jacks along the wall cable.

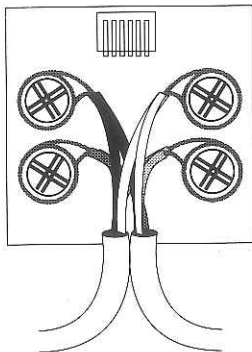
3. At each wall jack, follow these steps to strip the insulation off the yellow and black wires without cutting them:
 - a. Make a cut all the way around the outer insulation without cutting the wires inside. Make a second cut all the way around the outer insulation 2 inches from the first cut. Now make a cut lengthwise between the first two cuts.
 - b. Remove the 2-inch piece of insulation and discard it. You will see four wires colored yellow, black, red and green.
 - c. Strip about 1 inch of insulation from the yellow and black wires. Again, be careful not to cut the wires.



Expose the yellow and black wires without cutting them.

4. Follow these steps to loop the exposed section of the yellow and black wires around the screw terminals labeled "Y" and "B" in the wall jack:
 - a. Loosen the screw terminals labeled "Y" and "B" in the wall jack.
 - b. Loop the exposed yellow wire around the screw terminal labeled "Y" inside the wall jack.
 - c. Loop the exposed black wire around the screw terminal labeled "B" inside the wall jack.

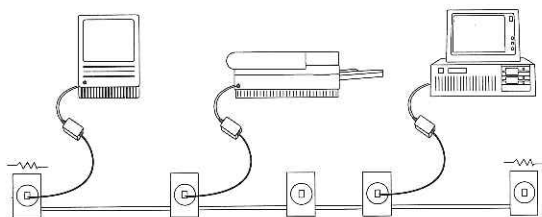
- d. Tighten the screw terminals and replace the wall jack covers. Be careful not to dislodge the spade lugs connecting the screw terminals to the RJ11 socket.



Loop the yellow and black wires around the yellow and black screw terminals in a wall jack.

5. Install a terminating resistor between the yellow and black screw terminals of the wall jacks at each end of the backbone. See *"Installing a terminating resistor in a wall jack"* later in this chapter.
6. Mount the wall jacks. The wall jacks supplied by Farallon have adhesive backs; remove the backing piece and stick the jacks in place. Other wall jacks may have screw mounts.
7. Test your network for shorts and proper termination. See *"Testing installed cabling"* in Chapter 5.

8. Plug a PhoneNET Connector into the AppleTalk port of each network device.
9. Locate or make a piece of modular extension cable (with RJ11 plugs at both ends) long enough to link each PhoneNET Connector to a wall jack, or use the 7-foot modular extension cable that came with the PhoneNET Connector.
10. Test the network by printing a document from each device, or by running diagnostic software such as CheckNET. See "Testing to see that the network functions properly" in Chapter 5.



A properly terminated backbone.

Installing a passive star

To install a passive star you need wall jacks, telephone wall cable and modular extension cable. You also need a wiring distribution block to connect the network branches together at the center of the star.

Punchdown blocks are often used at the center of a star because they keep your wiring well organized, allow easy wiring modifications, and can accommodate a PhoneNET StarController should your network need one. If you only have a few network branches, consider using a terminal block.

The instructions below describe the installation of a passive star using wall jacks, telephone wall cable and a punchdown block. You should be familiar with the use of a punchdown tool for this installation. Consult a qualified network installer if necessary.

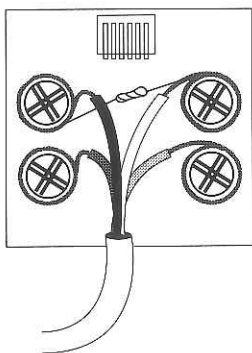
1. Install a punchdown block at a central location such as a telephone closet.
2. Pull or locate a separate length of telephone wall cable from the punchdown block to each wall jack.
3. Wire each wall jack.

If you are installing more than one wall jack on a network branch, wire the wall jacks along the network branch without cutting the telephone wall cable. See steps 3 and 4 of *"Installing a backbone"* in the previous section.

Follow these steps to wire the last wall jack on a network branch.

- a. Remove a 2-inch piece of the outer insulation. You will see four wires colored yellow, black, red and green.
- b. Strip about 3/4 inch of insulation from the yellow and black wires.
- c. Attach the exposed yellow wire around the screw terminal labeled "Y" inside the wall jack.
- d. Attach the exposed black wire around the screw terminal labeled "B" inside the wall jack.

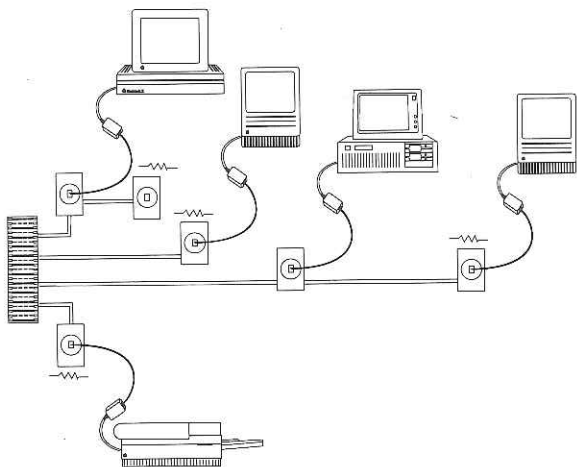
- e. Wrap one end of the resistor clockwise around the screw terminal labeled "Y", and wrap the other end of the resistor clockwise around the screw terminal labeled "B." Be careful not to dislodge the yellow and black screw lugs leading to the RJ11 socket.
- f. Tighten the screw terminals and replace the wall jack covers.



A wall jack with a terminating resistor installed.

4. Connect the wires coming from each wall jack to the punchdown block. Be sure to connect yellow wires to one row of pins, and black wires to the other row of pins.
5. Jumper all of the yellow wires together, and jumper all of the black wires together. If you are using Farallon's Passive Star Wiring Kit, simply insert the jumper plug into the punchdown block's 50-pin Amphenol socket. Otherwise, jumper the yellow rows together, and jumper the black rows together.

6. Test your network for shorts and proper termination. See *"Testing installed cabling"* in Chapter 5.
7. Plug a PhoneNET Connector into the AppleTalk port of each network device.
8. Locate or make a piece of modular extension cable (with RJ11 plugs at both ends) long enough to link each PhoneNET Connector to a wall jack, or use the 7-foot modular extension cable that came with the PhoneNET Connector.
9. Test the network by printing a document from each device, or by running diagnostic software such as CheckNET. See *"Testing to see that the network functions properly"* in Chapter 5.



A properly terminated passive star.

Installing an active star

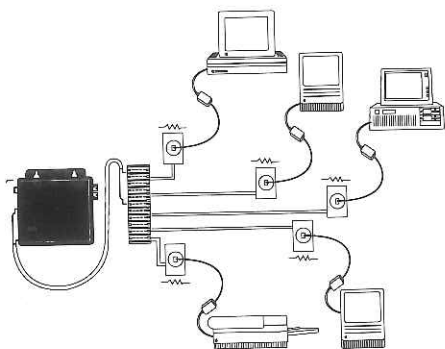
Although you can create much larger networks with an active star than a passive star, the basic steps for installing both are the same. Unlike the center of a passive star, the center of an active star must have a wiring distribution block with a 50-pin Amphenol socket so you can connect a PhoneNET StarController.

Farallon offers three types of wiring distribution blocks: a punchdown block, a patch panel and a harmonica block. All three of these have a 50-pin Amphenol socket for connecting a StarController.

The instructions below describe the installation of a simple active star using wall jacks, telephone wall cable, a punchdown block, a StarController, and 50-wire Amphenol cable. You should be familiar with the use of a punchdown tool for this installation. Consult a qualified network installer if necessary. Instructions for installing more sophisticated active stars appear in the *PhoneNET StarController User's Guide*.

1. Install a punchdown block and a PhoneNET StarController at a central location such as a telephone closet. Connect the two together with a 50-wire Amphenol cable.
2. Pull or locate a separate length of telephone wall cable from the punchdown block to each wall jack.
3. Wire each wall jack. See step 3 in "Installing a passive star" above for details.
4. Mount the wall jacks. The wall jacks supplied by Farallon have adhesive backs; remove the backing piece and stick the jacks in place. Other wall jacks may have screw mounts.

5. Connect the wires coming from each wall jack to the punchdown block. Be sure to connect yellow wires to one row of pins, and black wires to the other row of pins.
6. Test your network for shorts and proper termination. See *"Testing installed cabling"* in Chapter 5.
7. Plug a PhoneNET Connector into the AppleTalk port of each network device.
8. Locate or make a piece of modular extension cable (with RJ11 plugs at both ends) long enough to link each PhoneNET Connector to a wall jack, or use the 7-foot modular extension cable that came with the PhoneNET Connector.
9. Test the network by printing a document from each device, or by running diagnostic software such as CheckNET. See *"Testing to see that the network functions properly"* in Chapter 5.



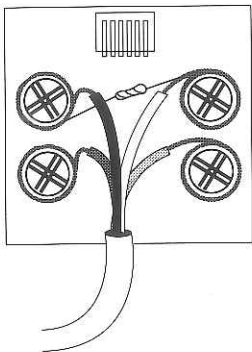
A properly terminated active star.

Installing a terminating resistor in a wall jack

Follow these steps to install a terminating resistor in a wall jack.

1. Remove the wall jack's cover.
2. Loosen the screw terminals labeled "Y" and "B" in the wall jack.
3. Wrap one end of the resistor clockwise around the screw terminal labeled "Y", and wrap the other end of the resistor clockwise around the screw terminal labeled "B." Be careful not to dislodge the yellow and black screw lugs leading to the RJ11 socket.

4. Tighten the screw terminals and replace the wall jack cover.



A wall jack with a terminating resistor installed.