Hardwiring Instructions

■ Locating RJ-11 Jacks

Hardwiring is often used to interconnect VisiCom transceivers. Hardwiring is needed when wireless communications are marginal or ineffective.

Hardwiring consists of a series of RJ-11 jacks, one at each transceiver location, connected together with low voltage wiring in a "daisychain" configuration...
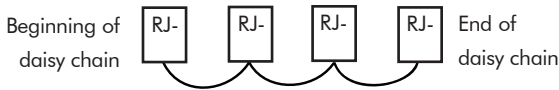
Beginning of daisy chain | RJ- | RJ- | RJ- | RJ- | End of daisy chain

Fig. 1. Daisychain configuration

Any VisiCom unit location may serve as the beginning, or end, of the daisychain, and units may be interconnected in any order.

■ Wiring RJ-11 Jacks

Run only a single cable from jack-to-jack and connect wires to the screws marked Red and Green as shown below. **DO NOT connect any wires to any of the terminals other than those marked Red and Green.** Consistent polarity of red and green wires must be observed from jack-to-jack, as shown below.
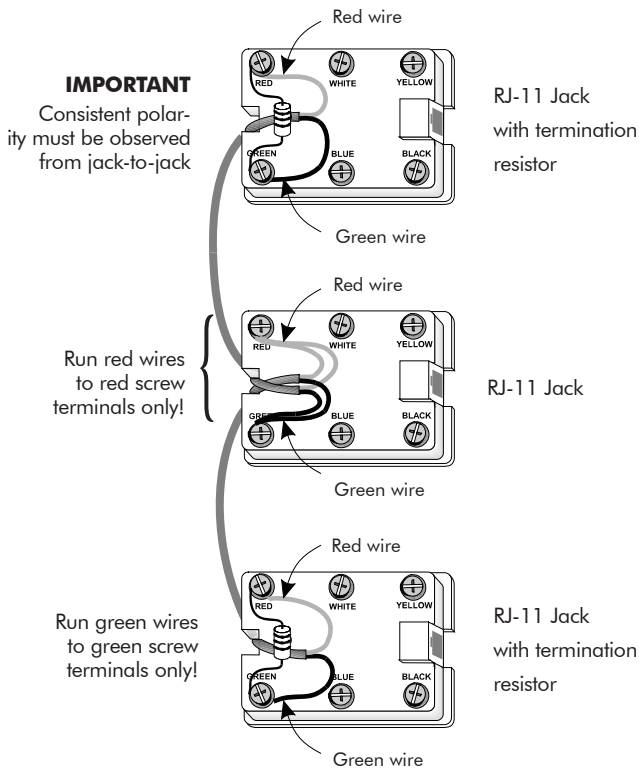
IMPORTANT
Consistent polarity must be observed from jack-to-jack

Red wire
RED   WHITE   YELLOW
GREEN   BLUE   BLACK
Green wire

RJ-11 Jack with termination resistor

Run red wires to red screw terminals only!

Red wire
RED   WHITE   YELLOW
GRE   BLUE   BLACK
Green wire

RJ-11 Jack

Run green wires to green screw terminals only!

Red wire
RED   WHITE   YELLOW
GREEN   BLUE   BLACK
Green wire

RJ-11 Jack with termination resistor

Fig. 2. A single pair cable is run from jack-to-jack

■ Connecting Units Using RJ-11 Patch Cords

Once the jacks and the hardwiring are installed, each VisiCom transceiver is connected to its associated RJ-11 jack using a patch cord having an RJ-11 plug on each end. VisiCom patch cords use a unique wiring pattern; standard telephone modular cords will **NOT** work for VisiCom units.
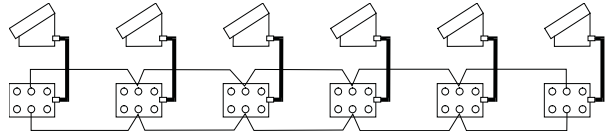
Fig. 3. Transceivers connected with RJ-11 patch cords

■ Termination Resistance

A 120 ohm, 1/4 watt resistor must be used across the connections at both the beginning and ending of the daisy chain wiring loop.

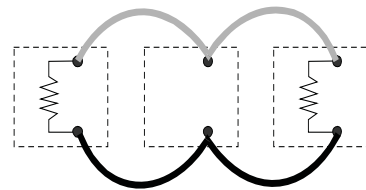Use two 120 ohm (+/- 5%) 1/4 watt resistors

Fig. 4. Termination resistors

Resistors are installed as shown below, creating pre-terminated RJ-11 jacks, also available from VisiCom.
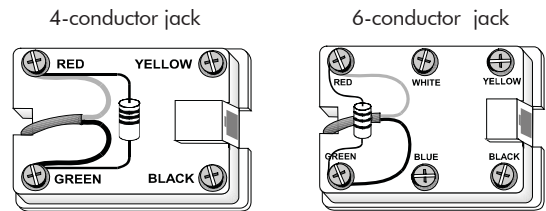
4-conductor jack
RED   YELLOW
GREEN   BLACK

6-conductor jack
RED   WHITE   YELLOW
GREEN   BLUE   BLACK

Fig. 5. Termination resistors installed

■ 110 VAC Electrical Wiring

Regardless of hardwiring, each VisiCom unit must be plugged into a 110 VAC outlet. If hardwiring is to be used, select locations for the RJ-11 jacks which are near the intended AC outlets.
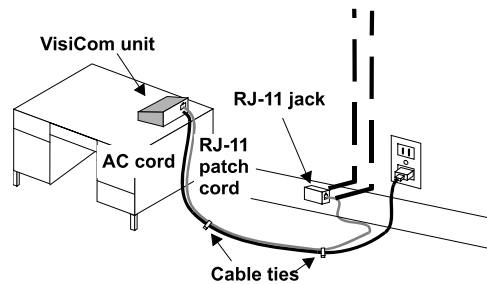
VisiCom unit
RJ-11 jack
AC cord
RJ-11 patch cord
Cable ties

Fig. 6. Choose jack locations near AC outlets

In new construction or major remodeling, AC power should be provided by means of one common, dedicated branch circuit powering **all** VisiCom units and fed by a separate, single breaker, if possible. Such a power feed will facilitate overall system reset if ever needed.

Hardwiring Instructions

■ Purchasing Wiring Materials

Only NEC code-compliant contractor grade materials should be used for hardwiring. If problems occur with the hardwiring, VisiCom representatives can only assist with troubleshooting when VisiCom-supplied wiring materials have been used. Please refer to the sample bill of materials below and contact a VisiCom service representative at 1-800-228-3400 to order VisiCom-approved wiring materials.

Typical Bill of Materials:

(Sample for 7 VisiCom unit locations)

5 ea.	RJ-11 jacks	4-wire	non-terminated	2101-0009
2 ea.	RJ-11 jacks	4-wire	terminated	2102-0010
7 ea.	RJ-11 patch cords	4-wire		2101-0012
7 ea.	50 ft. plenum wire	2-wire	(350' total)	2101-0028
1 ea.	Hardwiring tester			2101-0024

■ New Construction

Hardwiring is strongly recommended for all new construction projects and major remodeling. If the practice will be the sole building occupant and if removable ceiling tiles are used, hardwiring may be put off until determined to be absolutely necessary. However, postponing hardwiring is generally not recommended. In cases where more than 10 VisiCom units will ultimately be installed, hardwiring should always be provided.

As a first step, the construction project manager should identify, on a copy of the new floor plan, each VisiCom unit location. Using the electrical plan, locations should be chosen within 24 inches of an AC outlet for each RJ-11 jack. Starting at any location, and continuing in any order, install an uncut 22-guage single-pair cable from location to location, leaving a 4 foot exposed cable loop at each VisiCom RJ-11 jack site, as shown in Figure 7 below.
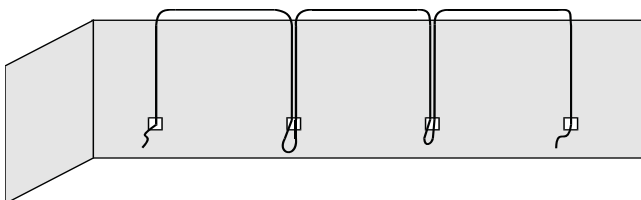

VisiCom unit

Terminated RJ-11 jack

AC cord

RJ-11 patch cord

Cable ties

Low-voltage wiring hidden in walls and ceilings

Wiring to next location in the daisy-chain

Fig. 7. Pre-wiring in new construction

After the walls are completed, install an RJ-11 jack on the baseboard and connect the pre-wired cable as described in the first page of these instructions.

■ Existing Structures

In circumstances where more than 10 VisiCom units will ultimately be installed, hardwiring is always recommended. First, identify each VisiCom unit location. Select a spot for each unit's RJ-11 jack on the baseboard. The jack should be located within 24 inches of the AC outlet. Starting at any location, and continuing in any order, run an uncut 22-guage single-pair cable from location-to-location as shown in Figure 8. "Homerun," or star configuration wiring, is not recommended or suppoted by VisiCom service representatives.

■ Testing

Prior to plugging patch cords into VisiCom units or RJ-11 jacks, follow the directions supplied with the VisiCom hardwiring tester to verify the hardwiring and jacks, and to test each patch cord. Testing the hardwiring by merely sending messages, without using the wiring tester, **DOES NOT** confirm the efficacy of hardwiring. The provided Hardwiring Tester **MUST** be used to ensure proper wiring and guaranteed communications.

■ Other Specifications

It **is** permissible to install unused RJ-11 jacks at locations for future use. A common difficulty arrises in the attempted use of non-VisiCom RJ-11 patch cords. Unlike ordinary phone cords, VisiCom patch cords use straight-through wiring. **Their use is necessary to acheive proper hardwiring operation.**

In some cases, partial hardwiring may be sufficient. If, for example, only one VisiCom unit has trouble communicating because it's on an isolated electrical circuit or phase, that unit may be hardwired to any other unit to solve the local communications problem. When partial hardwiring is employed, contact a VisiCom service representative for instructions about changing the necessary settings on the units involved.

In existing structures where hardwiring may be impractical, VisiCom RF-Transceivers are available to provide a radio-based wireless means of interconnecting two or more units.