

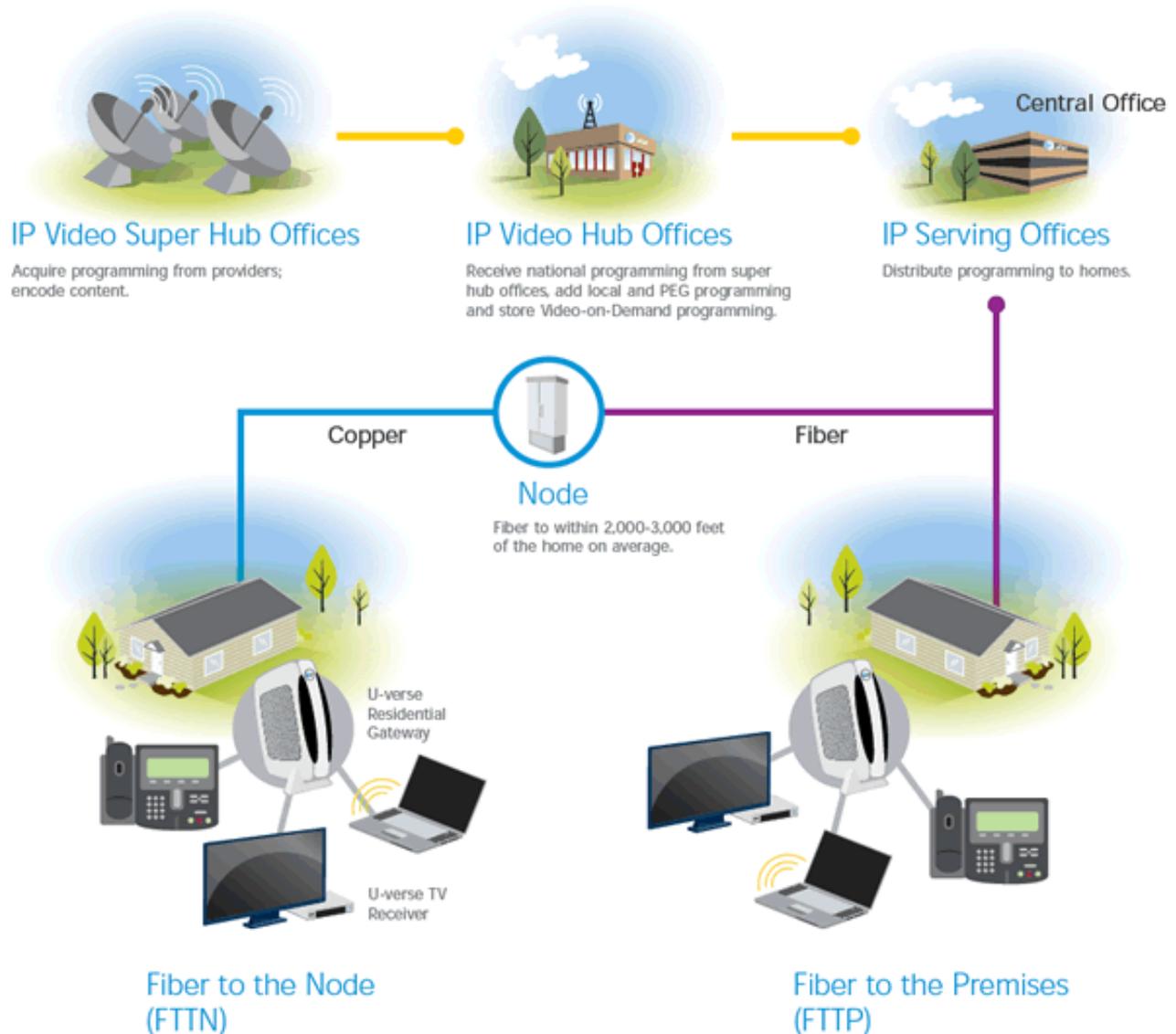
COMCAST, AT&T, VERIZON

Comcast primarily uses coaxial cable to transmit services to its customers, terminating in a Cable Modem at the subscriber premises.

AT&T primarily uses fiber optic cabling to provide its services and this is typically achieved in one of two methods:

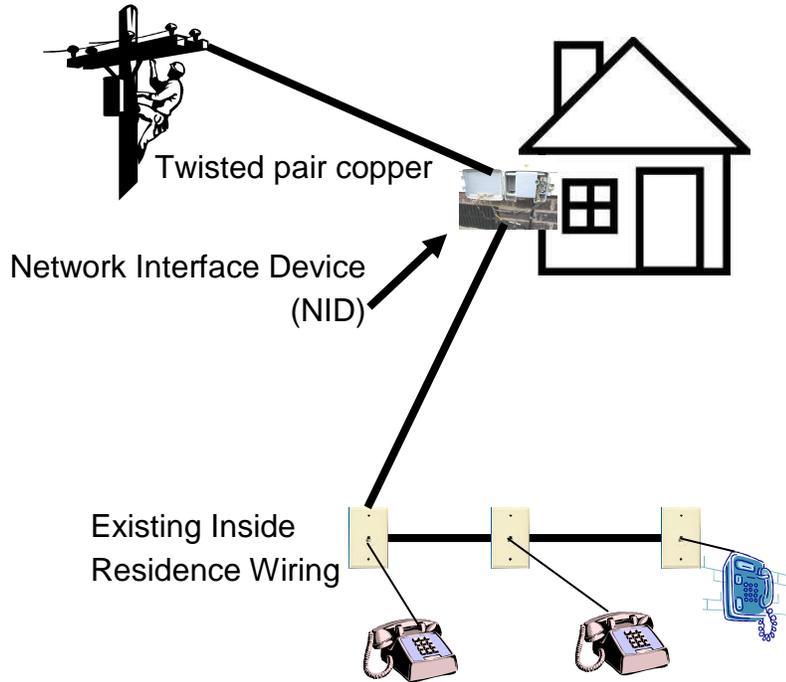
A) Direct fiber optic cabling to subscriber.

B) Fiber optic cabling to a local neighborhood node and copper wiring the rest of the way to the subscriber.

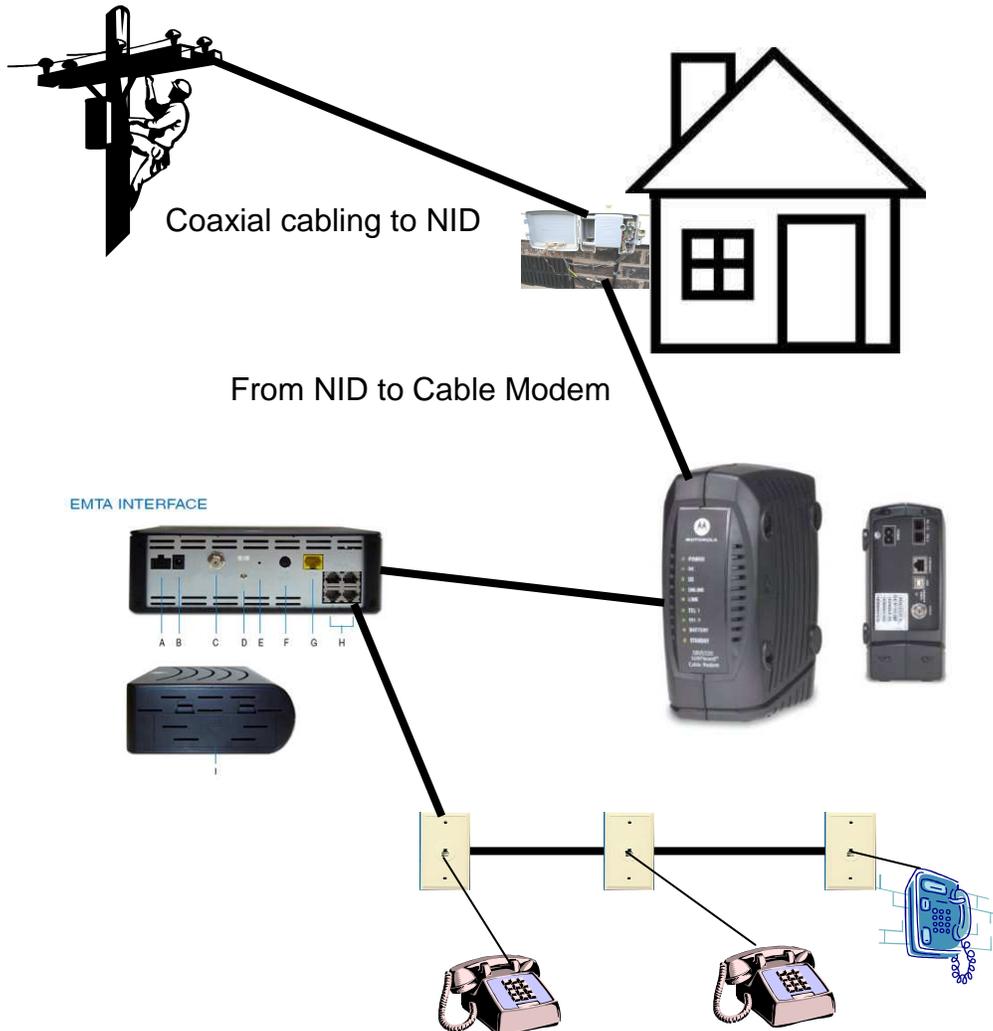


Verizon uses their FIOS (Fiber Optic Service) to run fiber optic cabling directly to the subscriber premises, terminating in an Optical Network Terminal (ONT) outside the premises, and a cable modem inside the premises that operates in much the same manner as ComCast and AT&T equipment.

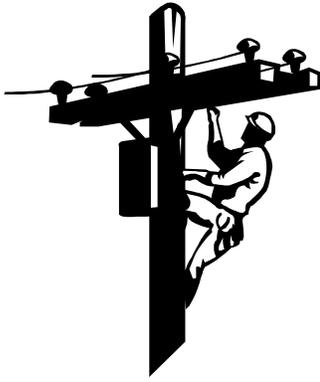
CONVENTIONAL TELEPHONE COMPANY HOOKUP



TYPICAL COMCAST XFINITY HOOKUP

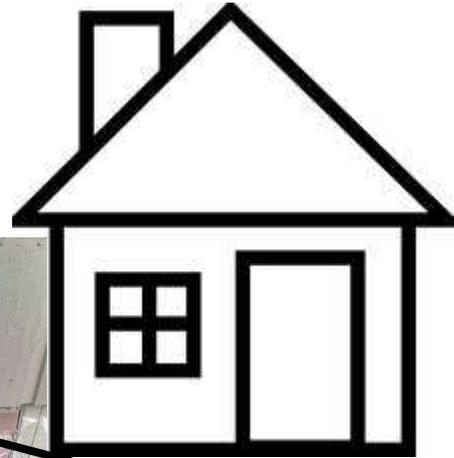


TYPICAL AT&T UVERSE HOOKUP



Fiber optic cabling
Direct to house

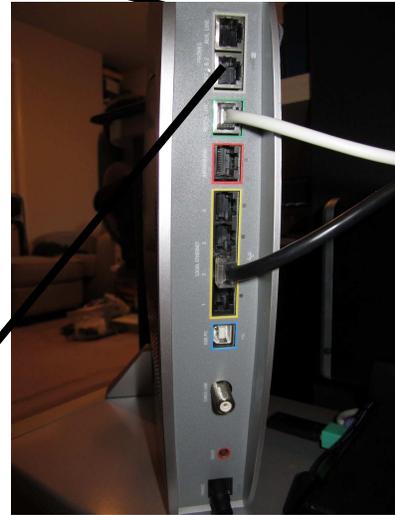
OR



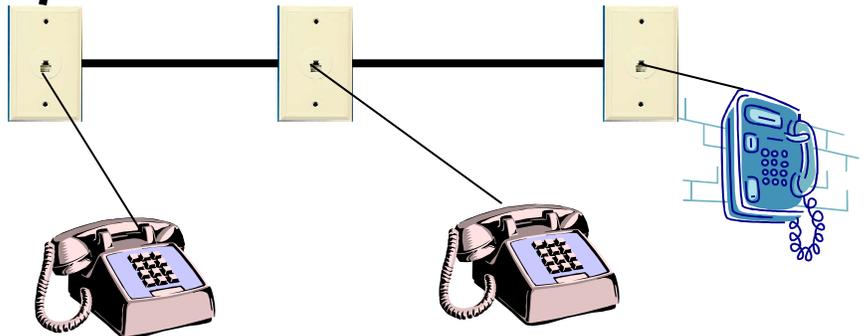
Fiber To The Node (FTTN) and
copper to the House



AT&T Fiber Optic cabinet and power supply

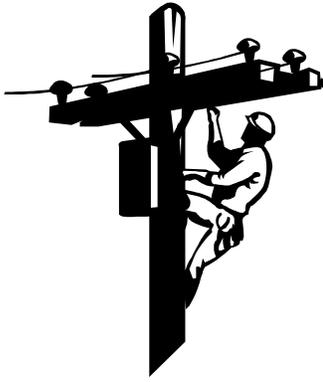


Existing Inside
Residence Wiring



TYPICAL VERIZON FIOS HOOKUP

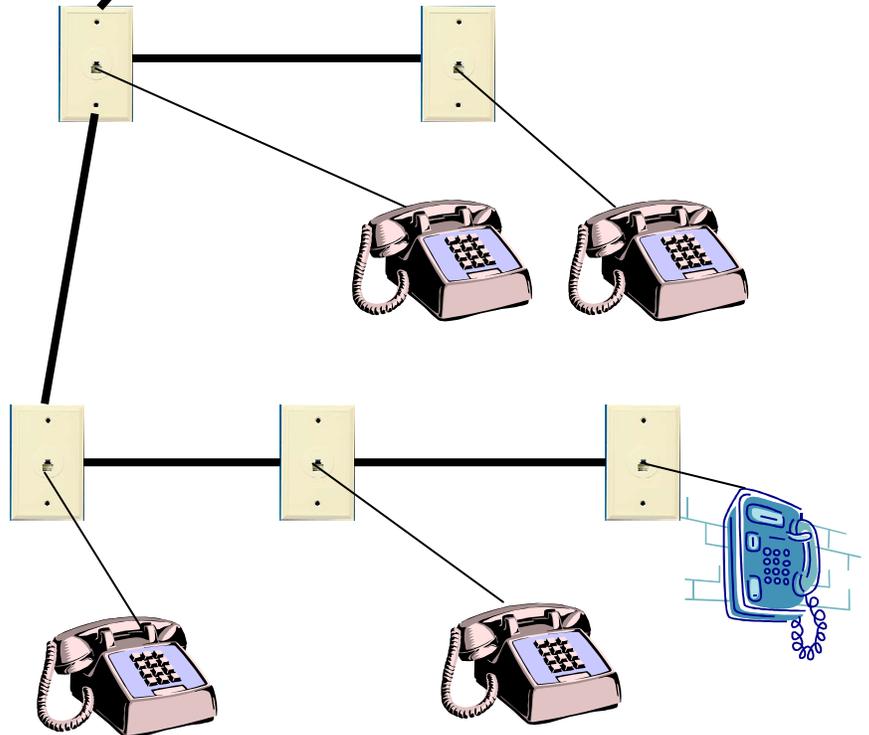
Fiber optic cabling
(May be run under ground.)



Tellabs 1600 or
Motorola 1000M ONT



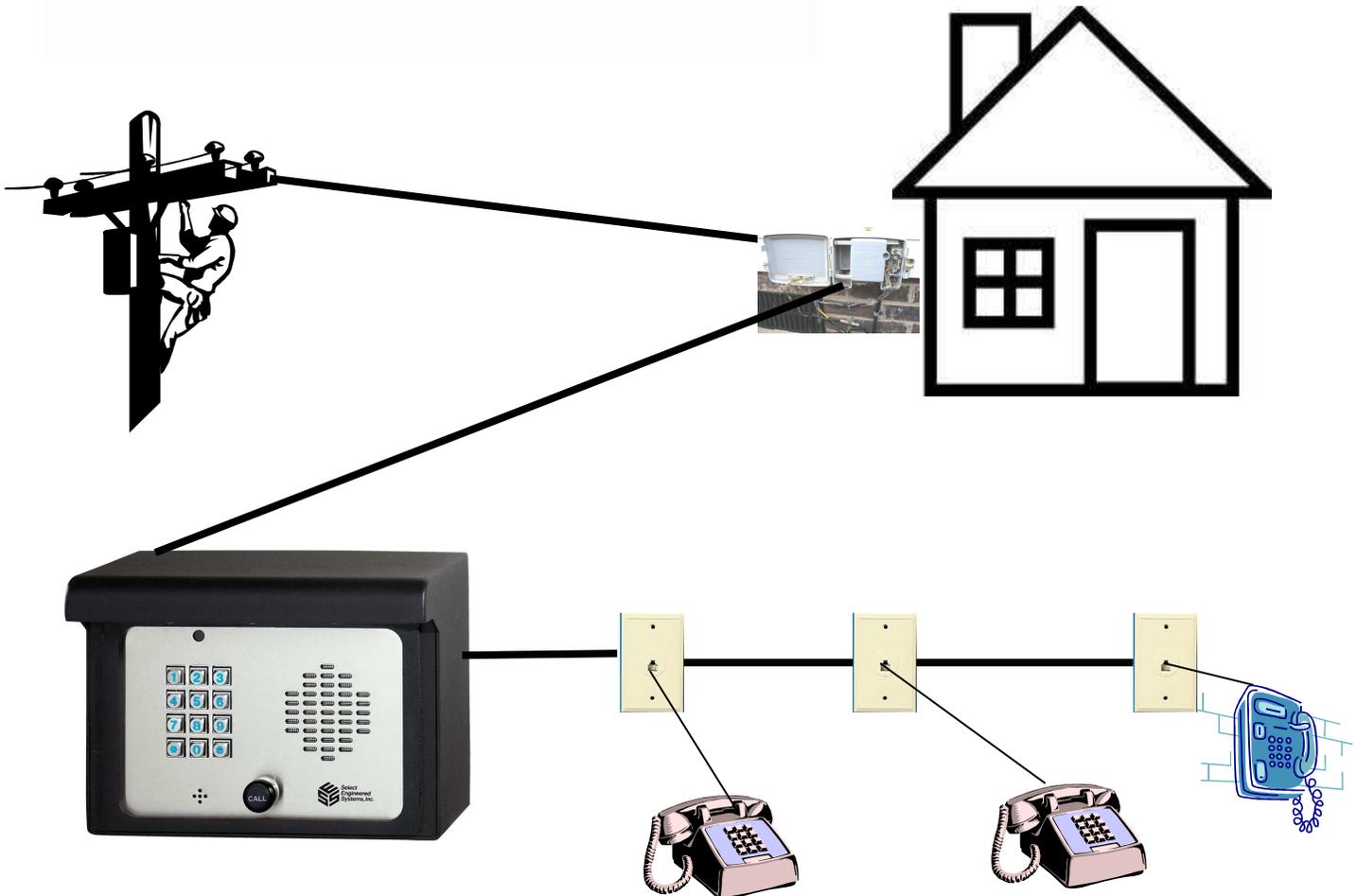
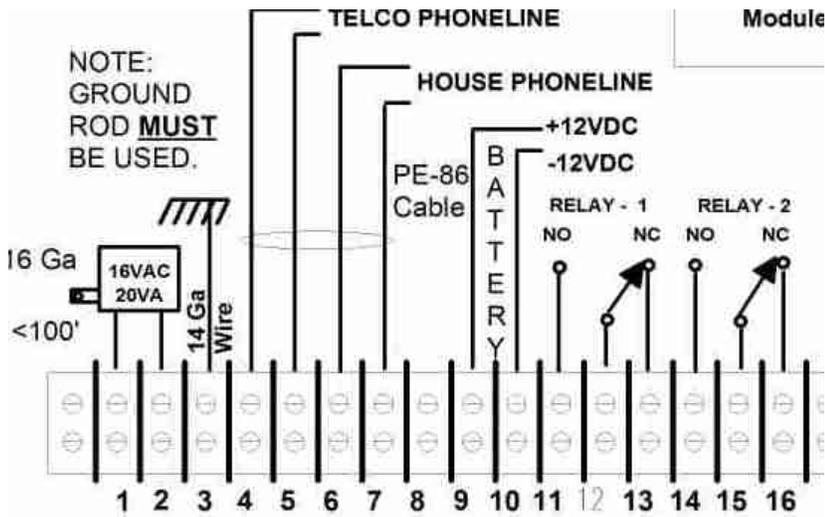
Existing Inside
Residence Wiring



Connecting Select Gate Products to Conventional Telephone Providers

TELCO HOOKUP:

In a conventional telephone installation, the path goes from the TelCo to a residence NID where it is intercepted and connected to 4 & 5 on the Select Gate terminal barrier strip (TelCo side). A second pair of twisted copper wiring is connected to 7 & 8 on the Select Gate terminal barrier strip, routed back to the NID and then attached to the wiring inside the residence.



Connecting Select Gate Products to Alternative Digital Service Providers

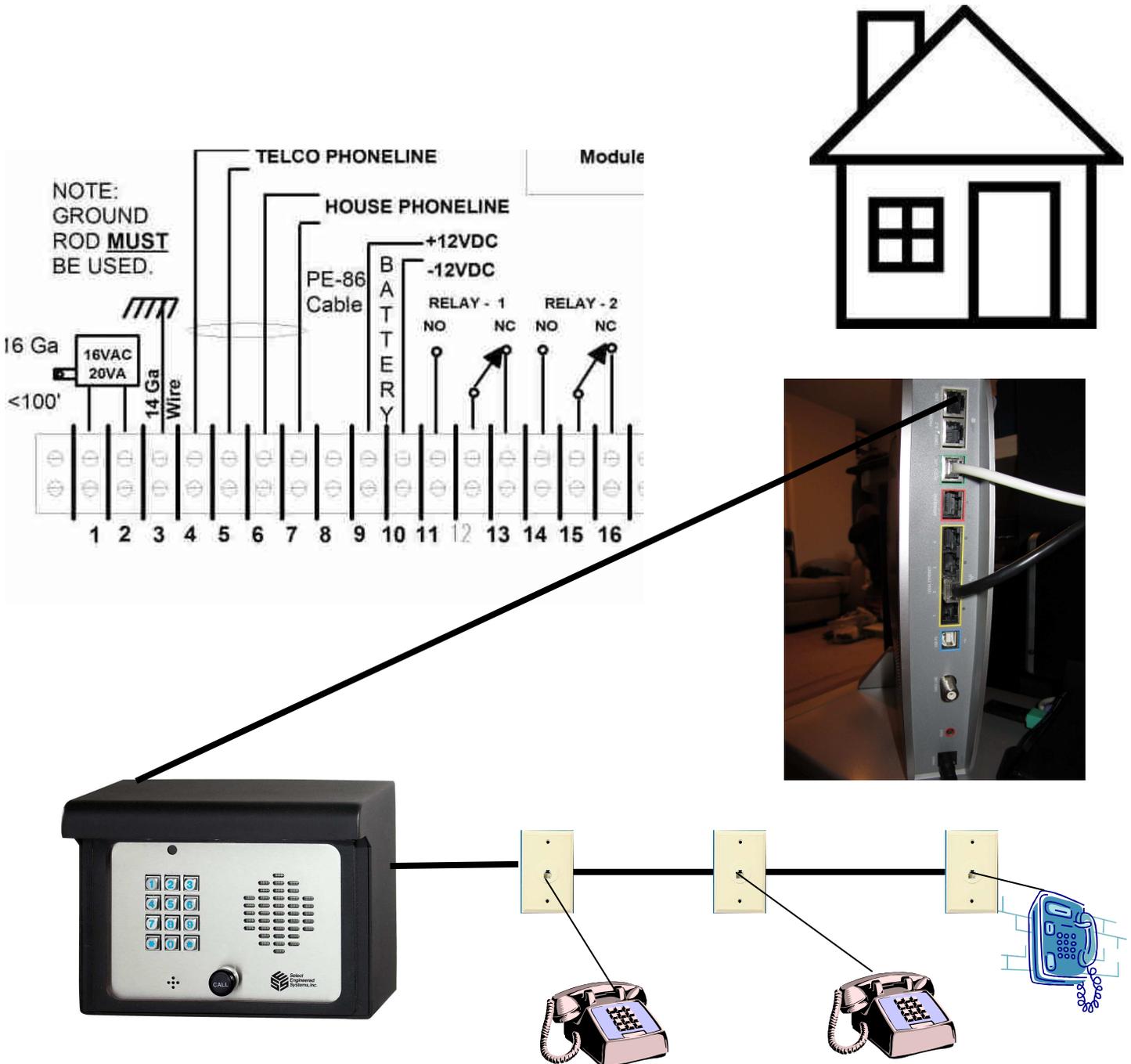
ALTERNATIVE SERVICE PROVIDER HOOKUP:

For alternative service provider installations, the path no longer goes from the TelCo to a residence NID where it is intercepted and connected to 4 & 5 on the Select Gate terminal barrier strip (TelCo side).

Instead, a pair of wires must connect from the phone port on the cable modem and to 4 & 5 on the Select Gate.

Another pair of twisted copper wiring is connected to 7 & 8 on the Select Gate terminal barrier strip and attached to the wiring inside the residence.

This is the same procedure to use for any alternative phone service provider.



ISSUES AND CHALLENGES FOR USING ALTERNATIVE SERVICE PROVIDERS:

I) WIRING

The quickest way for an installer to provide phone service from a digital device that incorporates ATAs is to disconnect the outside TelCo line previously going to the house. This prevents signals such as ring voltages from damaging the digital equipment. Since phones in a residence are usually all wired in parallel, running a cable with RJ-11 plugs at each end and connecting one end to the digital device and the other end to the nearest telephone jack accomplishes connecting all the phones in the residence to the digital device. (Cable modem)

Therefore, installing a Select Gate will require intercepting the phone port and connecting it directly to terminals 4 & 5 on the Select Gate. In some cases, this may require using spare pairs in the building phone wiring to accomplish a discrete path from the digital device to the Select Gate.

II) MODEMS

In the event that dial-up modems are required for programming the Select Gate some issues may arise, depending on the type of alternative service provider used and the area of the country that the equipment is located. The easiest way to guarantee reliable modem operation, is to request fax capability features on the service provider equipment.

A) In-Band DTMF Filtering

Usually found on ComCast systems, this function is programmed into the Cable Modems from the Cable Plant and affects some of the frequencies used by SES modems. Disabling this function resolves the issue. Where it cannot be disabled, switching to a different modem protocol (such as Bell 212) may be a workable solution. Contact SES for details on Bell 212 settings. These types of cable modems are slowly being phased out in favor of XFINITY style equipment.

B) Line Current

Some SES devices need approximately 25 ma of current for the modems to function correctly. Some devices from some service providers (such as older Verizon equipment) are set to provide only 15 ma of current and may not operate reliably in all cases on all SES products. To test for this, put a DC milliammeter in series with the phone line and operate the equipment (dial out to another phone number) and measure the current. If less than 25 ma, contact the service provider for a solution.

C) Network Latency

On some systems, excessive network latency can cause the modem in SES equipment to disconnect. The solution is to operate the modems at lower baud rates, or use alternative modem protocols such as Bell 212.

III) DTMF Pulse Duration

Dual Tone Multi Frequency (DTMF) more commonly called Touch Tones need to have a pulse duration of 50 msec (milliseconds) to properly actuate SES equipment. Some equipment shortens DTMF tones to less than 50 msec. The symptom is hearing a brief "chirp" instead of a tone. Contacting the Service Provider to find ways to configure their digital devices will be required. As a general rule, this same problem will show up when residents try to access touch tone services (e.g. checking banking balances over the phone, etc.).