

No Phone Line II-48 System

Used in conjunction with an EntraGuard Telephone Entry System, the NPL II-48 provides “No Phone Line” communication and door or gate control through existing building telephone lines without the need to purchase phone company switching services. The NPL II-48 consists of a master backplane with connectors for up to four individual relay cards. Each relay card can handle 12 lines, allowing the unit to control up to 48 lines.

1.0 Installation

The NPL II-48 cabinet should be mounted in an out-of-the-way location such as a telephone or utility closet. Mounting and wiring instructions for the EntraGuard panel is unchanged when using the NPL II-48, except for the phone line which is wired to the NPL II-48 unit. The phone line punch down block(s) which distributes calls to the individual building phones should be located adjacent to the NPL II-48 cabinet. If adjacent installation is not possible, contact your dealer for alternative installation procedures and applicable wire-run limitations.

1.1 Unit Mounting

Each unit should be mounted on a solid wall. Typically, four #10 1-1/2 inch wood screws into studs or a Telco back board are used. If necessary, provide additional framing or a backing plate if the cabinets are being mounted to paneled or dry walled areas. The more securely the units are mounted, the higher the level of ongoing system integrity.

NOTE: Before beginning unit mounting and wiring, check all applicable local, state, and federal codes to ensure that all mounting location and wiring requirements are met.

1. Prepare the mounting surface to receive four #10 1-1/2 inch wood screws, or four 3/16 inch bolts or drive studs (see Figure 1 on page 2).
2. Remove the electrical knockouts from the cabinet as required.
3. Start the upper two screws (the upper mounting holes in each cabinet are slotted to allow the cabinet to be slipped over these two screws). Set the cabinet in place. Insert and tighten the lower two screws, then tighten the upper two screws.



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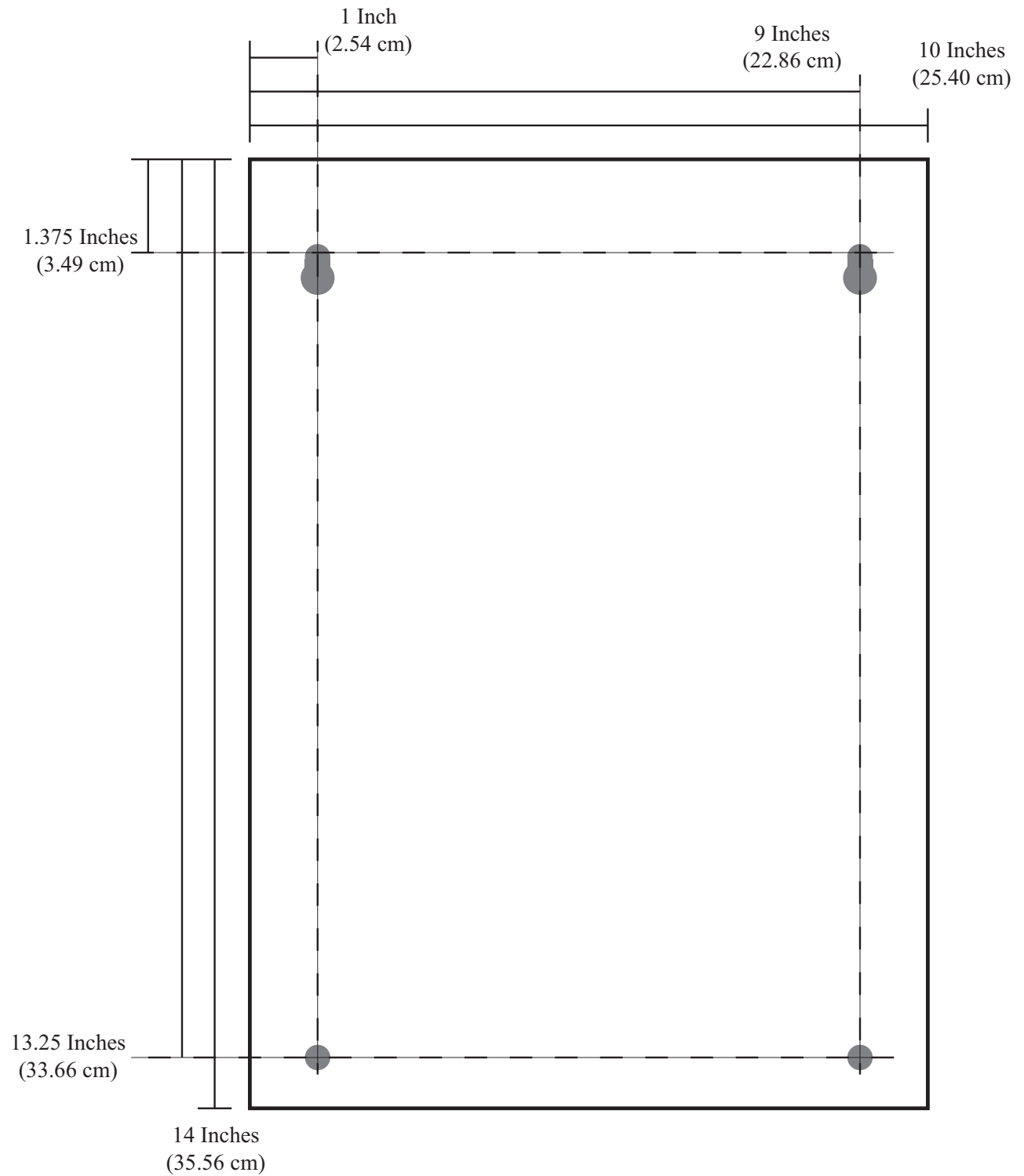


Figure 1: NPL II-48 Cabinet and Auxiliary Relay Cabinet Mounting Hole Locations

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1.2 Power Requirements

The NPL II-48 Cabinet is powered by a 16 VAC @ 40 VA Class II step down transformer which must be connected to a separate, unswitched (always ON) 120VAC circuit (typically a standard wall outlet). If possible, provide a dedicated power circuit free from any other loads to avoid any inadvertent power fluctuations to the unit, and locate the transformer as close as possible to the cabinet (see Table 1) in a place where it will not be accidentally unplugged.

Table 1: Wire Gauge per Run Length

Run Length in Feet	Minimum Wire Gauge
0 to 80 feet	18
31 to 300 feet	16
301 to 500 feet	14
501 to 800 feet	12

1.2.1 Earth Ground

Make a quality earth ground connection to the NPL II-48 panel to ensure the best possible operating conditions for the panel (see Figure 3 on page 5). Without a quality earth ground connection, the NPL II-48 panel may appear to operate correctly, but will be extremely susceptible to transients and electromagnetic interference on data and power lines. An earth ground brings all electrically neutral lines to the earth's surface potential (essentially to a zero potential) providing two primary benefits to the NPL II-48 panel.

1. An earth ground protects the NPL II-48 panel from electrical transients such as power surges and lightning strikes (also providing a degree of safety for an operator).
2. An earth ground provides a path to ground for electrical interference minimizing data and communication problems for the NPL II-48 panel communication lines.

Here are some possible sources for an earth ground.

- copper shrouded ground rod
- cold water pipe (must be a metal pipe - not PVC)
- steel building framing member (if the building's frame is embedded in the earth)
- electrical system ground (at the breaker/fuse box)
- telephone system ground

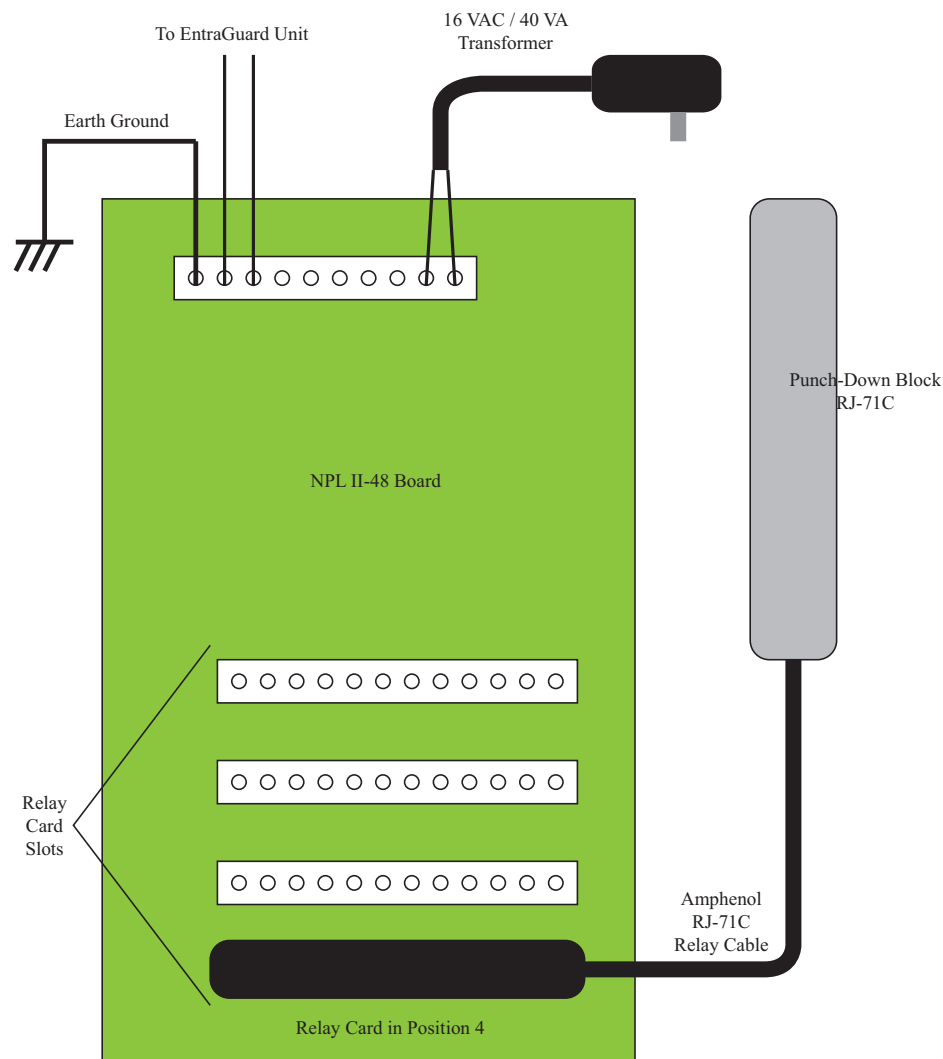


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2.0 Wiring

The following components are needed to completely wire an NPL II-48 system.

- NPL II-48 Cabinet
- 16 VAC - 40 VA Transformer
- Up to 4 Relay Card(s)
- RJ-71C Punch Down Block with Amphenol Jumper Block
- Amphenol RJ-71C Relay Cable – approximately 15 feet long – (1 per Relay Card)



Items in this drawing are not to scale.

Figure 2: NPL II-48 System Diagram

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2.1 NPL II-48 Power and Phone Line Wiring Diagram

- Connect the Earth Ground and the AC Power per the instructions in Section 1.2.
- Using a standard, two-conductor telephone cable, connect one end of the cable to Terminals 2 and 3 on the Control Board (labeled Lobby – see Figure 3 on page 5). The opposite end of the cable should be fitted with a standard RJ-11 telephone plug and then plugged into the RJ-11 jack on the EntraGuard circuit board.

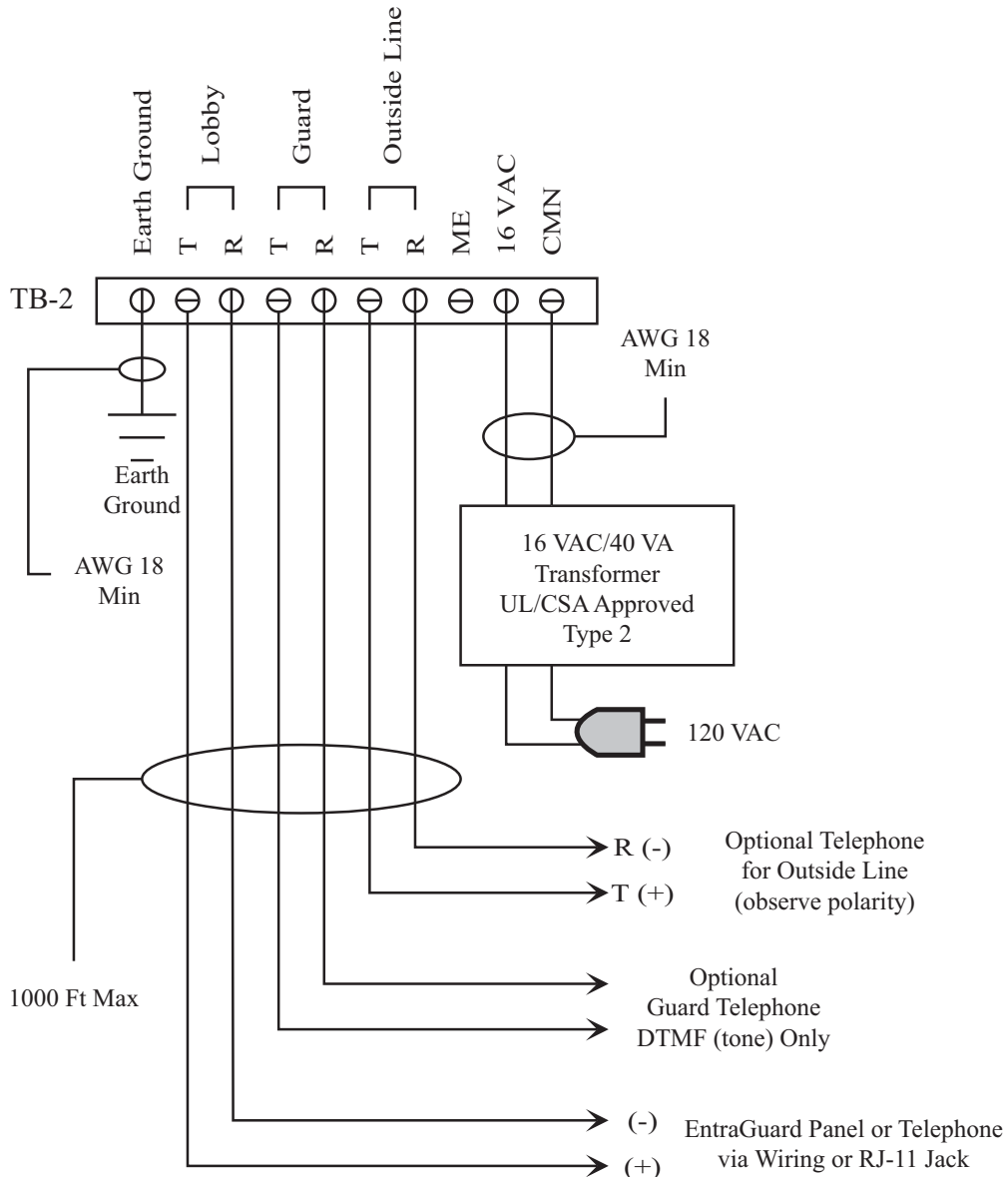


Figure 3: NPL II-48 Power and Phone Line Wiring Diagram

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3.0 Installing Relay Cards

On the bottom third of the NPL 11-48 board is a column of four sets of twelve pins (see Figure 2 on page 4). A relay card can be plugged into each set of pins.

To install a relay card, orient the card with the LED on the left side. Align the connector at the base of the card with the row of pins on the NPL board and press the card into place onto the pins (see Figure 4 on page 6). Each relay card has 12 telephone switching relays allowing one card to manage up to 12 telephones, one relay per telephone.

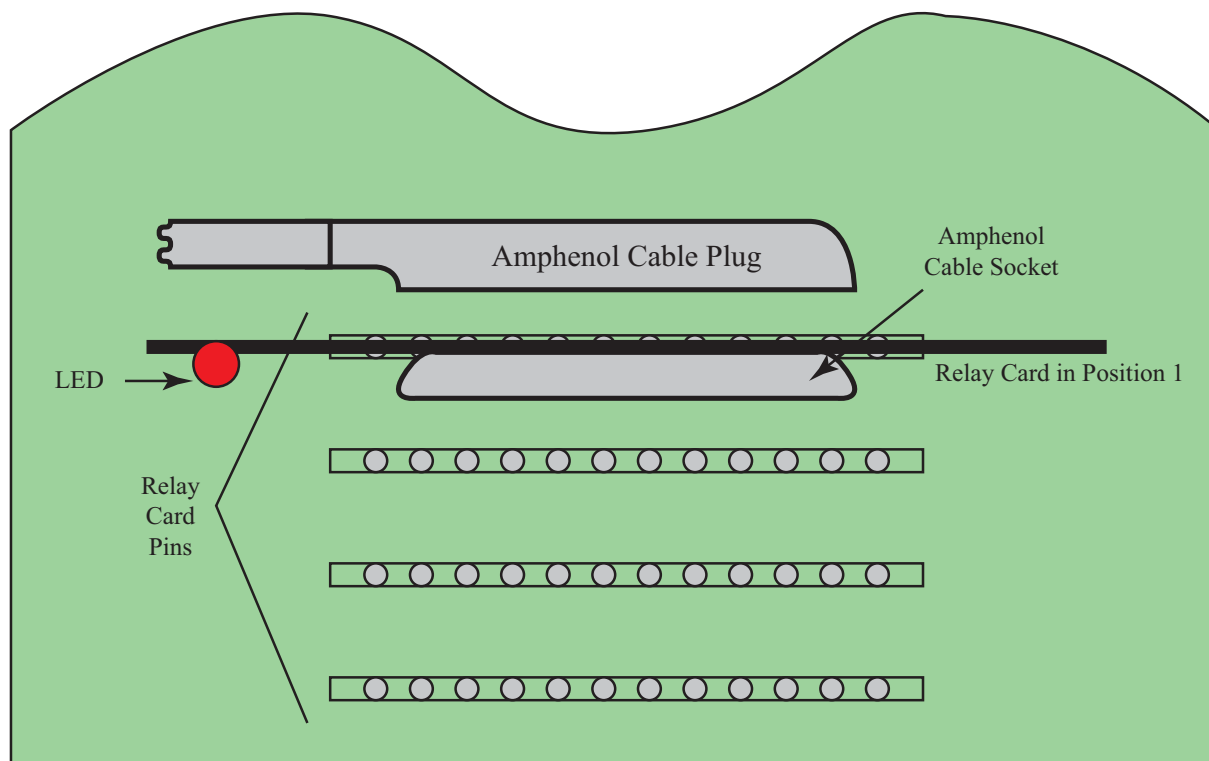
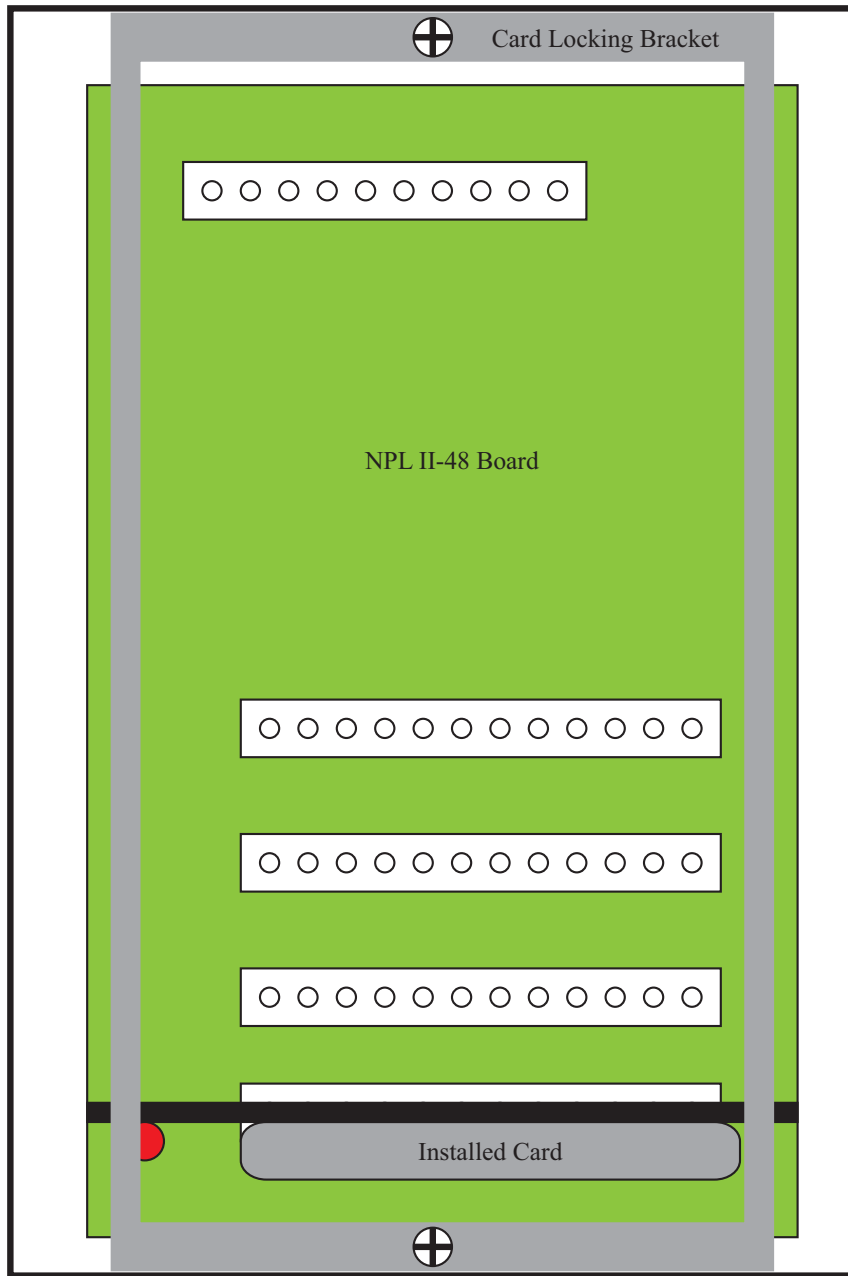


Figure 4: Installing Relay Cards

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Secure seated relay cards using the provided bracket (Figure 5 on page 7).



Items in this drawing are not to scale.

Figure 5: Securing the Relay Cards

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3.1 Inserting an NPL II-48 Into a Phone System

To insert an NPL II-48 into a phone system you must insert a punch down block (RJ-71C) into the incoming house telephone lines for each house being managed by the NPL II-48 system (see Figure 6 on page 8). Once the punch down block is installed, a relay card is connected to the punch down block, managing the switching between regular phone service and entry management.

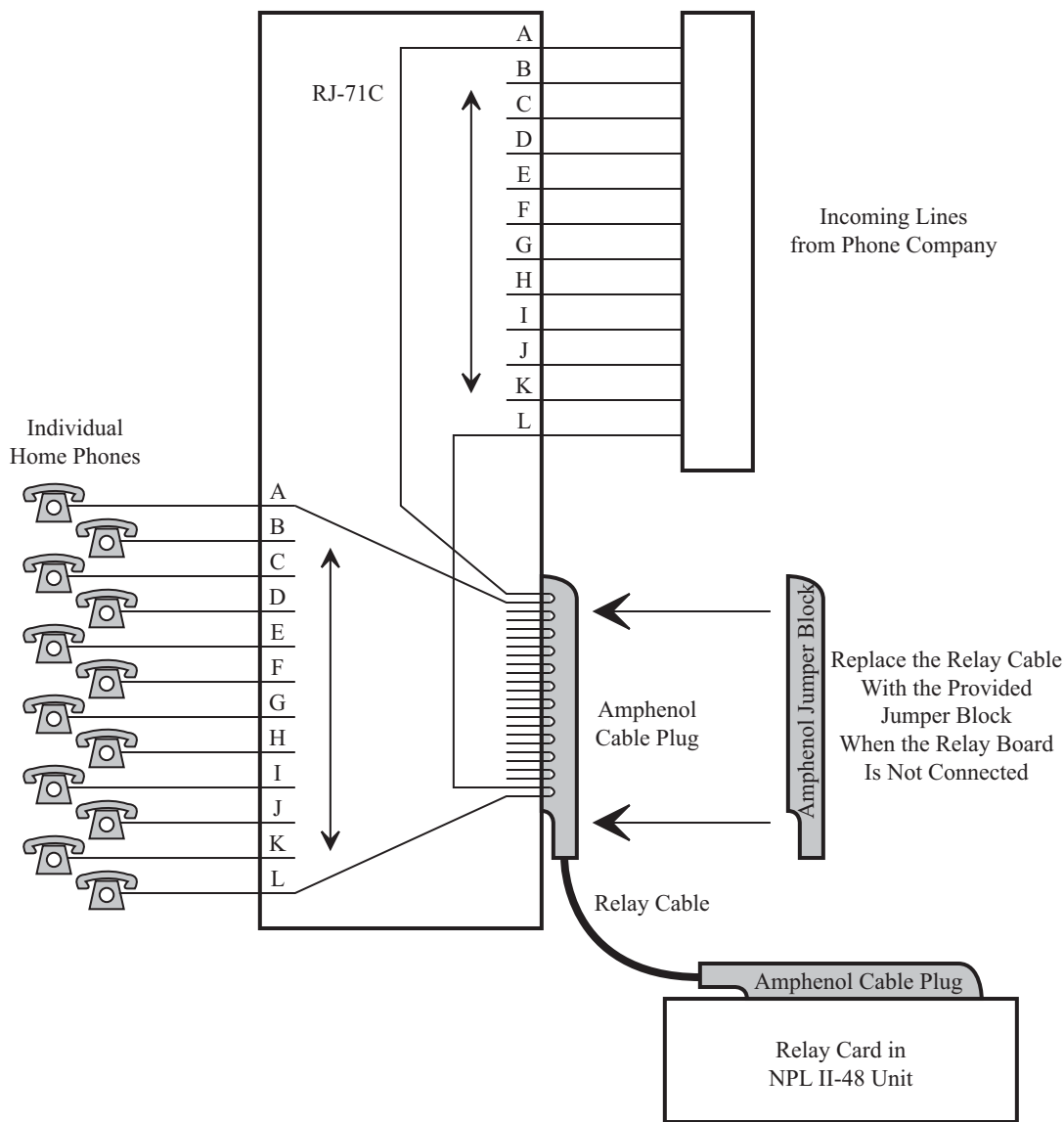


Figure 6: Inserting the NPL II-48 Into a Phone System

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3.1.1 Insert a Punch Down Block Into the Phone Lines

The lines coming in from the phone company for each house telephone must be opened and connected to the RJ-71C punch down block – one punch down block for every 12 phones. It is recommended that you work with one phone line at a time to minimize telephone down time and reduce the possibility of crossing lines.

Ensure a 50-pin Amphenol jumper block is inserted into the Amphenol connector on the body of the punch down block (see Figure 6 on page 8). This jumper block completes the telephone line circuit to allow use, and will be replaced by a cable to an Auxiliary Relay Cabinet when the NPL II-48 system is ready to be used.

Locate the phone company D-mark punch down block and the house telephone D-mark punch down block. You must insert the RJ-71C punch down block in between the two D-mark punch down blocks.

- Connect the incoming TIP line (from the telephone company) to the appropriate split-pin connector on the RJ-71C punch down block (see Table 2 on page 10 and Figure 7 on page 12).
- Connect the incoming RNG line (from the telephone company) to the appropriate split-pin connector on the RJ-71C punch down block (paired with the incoming TIP line – see Table 2 on page 10 and Figure 7 on page 12).
- Connect the outgoing TIP line (to the house telephone) to the appropriate split-pin connector on the RJ-71C punch down block (see Table 3 on page 11 and Figure 7 on page 12).
- Connect the outgoing RNG line (to the house telephone) to the appropriate split-pin connector on the RJ-71C punch down block (paired with the outgoing TIP line – see Table 3 on page 11 and Figure 7 on page 12).



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Table 2: Incoming Phone Line Punch Down Block Assignments

Relay Assigned to Phone (See Figure 6 on page 8)	Phone Line	Punch Down Block Pin Number
A	TIP	Pin 1
	RING	Pin 2
B	TIP	Pin 3
	RING	Pin 4
C	TIP	Pin 5
	RING	Pin 6
D	TIP	Pin 7
	RING	Pin 8
E	TIP	Pin 9
	RING	Pin 10
F	TIP	Pin 11
	RING	Pin 12
G	TIP	Pin 13
	RING	Pin 14
H	TIP	Pin 15
	RING	Pin 16
I	TIP	Pin 17
	RING	Pin 18
J	TIP	Pin 19
	RING	Pin 20
K	TIP	Pin 21
	RING	Pin 22
L	TIP	Pin 23
	RING	Pin 24



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Table 3: Outgoing Phone Line Punch Down Block Assignments

Relay Assigned to Phone (See Figure 6 on page 8)	Phone Line	Punch Down Block Pin Number
A	TIP	Pin 27
	RING	Pin 28
B	TIP	Pin 29
	RING	Pin 30
C	TIP	Pin 31
	RING	Pin 32
D	TIP	Pin 33
	RING	Pin 34
E	TIP	Pin 35
	RING	Pin 36
F	TIP	Pin 37
	RING	Pin 38
G	TIP	Pin 39
	RING	Pin 40
H	TIP	Pin 41
	RING	Pin 42
I	TIP	Pin 43
	RING	Pin 44
J	TIP	Pin 45
	RING	Pin 46
K	TIP	Pin 47
	RING	Pin 48
L	TIP	Pin 49
	RING	Pin 50



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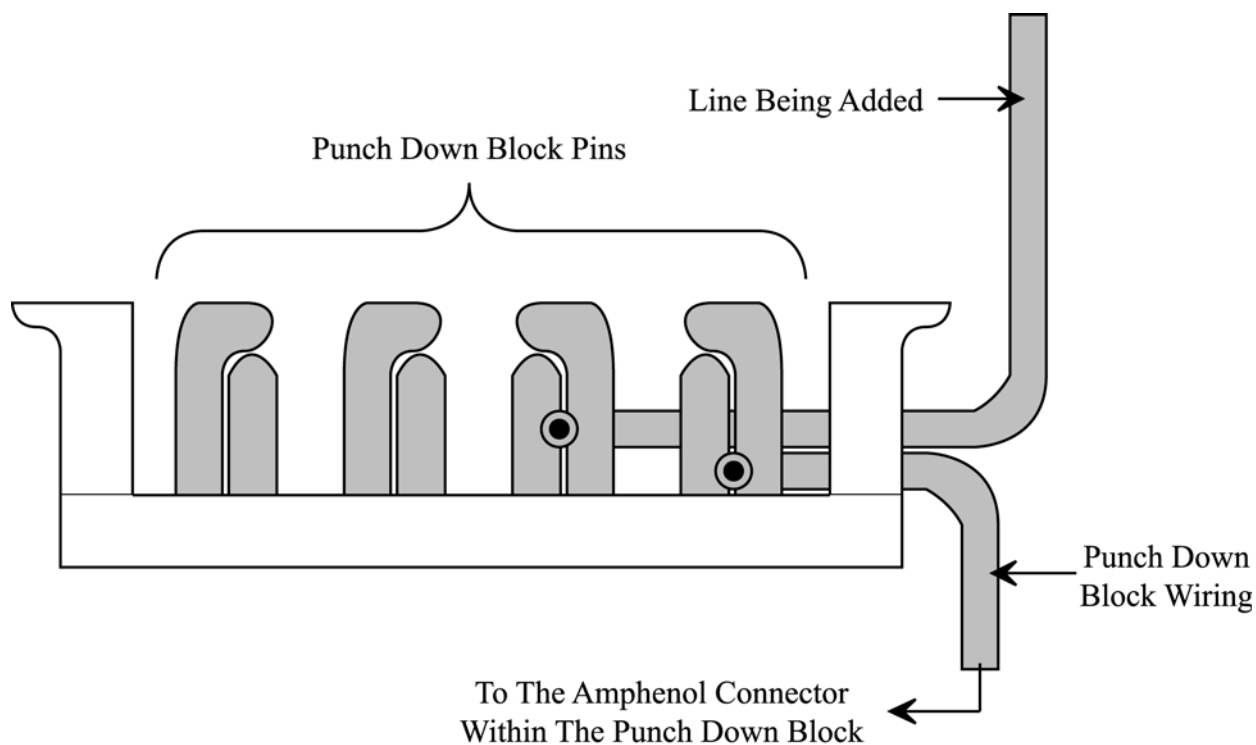


Figure 7: Inserting the Punch Down Block

3.1.2 Connect a Relay Option Board to an RJ-71C Punch Down Block

A 50-pin Amphenol cable is provided with each relay option board to connect the option board to the RJ-71C punch down block (Table 4 on page 12 provides information associating the phone line relay number with the relay card). Cable orientation does not matter – either connector end may be attached to either the option board or the punch down block. Align the cable’s Amphenol plug with the Amphenol socket on the relay option board or the punch down block and press the connector into place (see Figure 6 on page 8).

Table 4: Phone Line Relay Numbering

Relay Card Number			
1	2	3	4
0000 to 0011	0012 to 0023	0024 to 0035	0036 to 0047

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3.2 Connecting Optional Equipment

If desired, options such as a guard phone, an outside line telephone, or a line blocking device (line privacy circuit) should be connected after the NPL II-48 and its Auxiliary Relay Cabinets are completely installed.

4.0 Programming

In an EntraGuard active telephone line application, people are contacted by dialing that person's telephone number. An association has been made in the *Doors* program between a person and that person's telephone number.

In an NPL application, the telephone number is replaced by the assigned NPL relay number, and the association is made between a person and the NPL relay number. For each person, simply enter the corresponding NPL relay number into the Phone Number field of the user database in the *Doors* program. See Figure 8 and Figure 9 for examples.

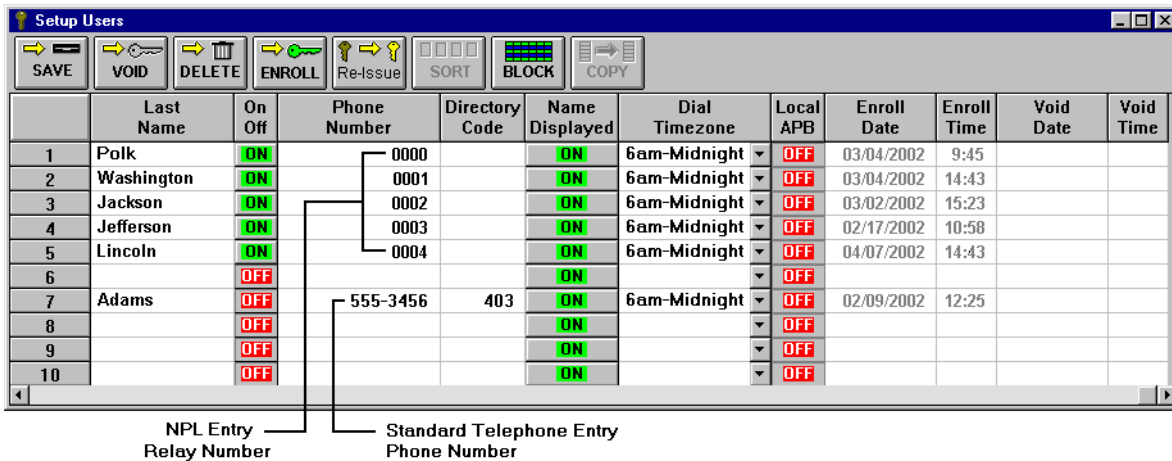


Figure 8: Relay Number Assignment in *Doors* User Spreadsheet



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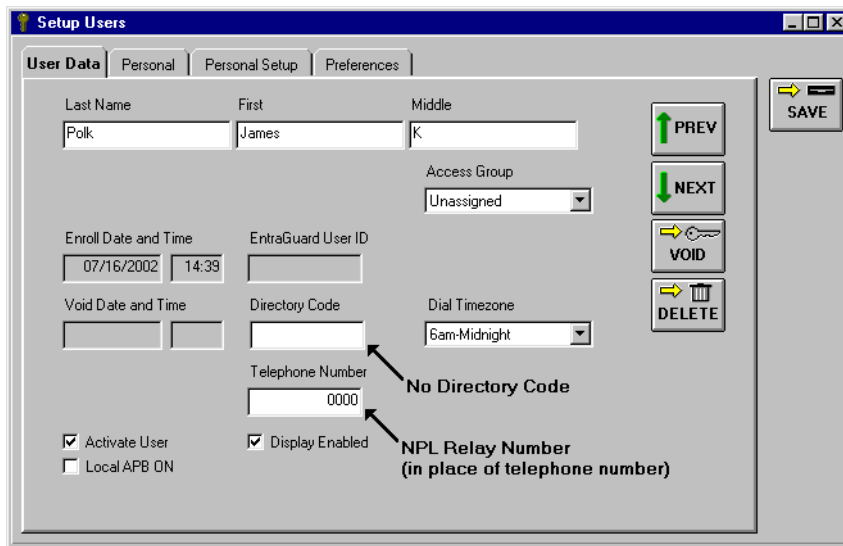


Figure 9: Relay Number Assignment in *Doors* User Dialog Box