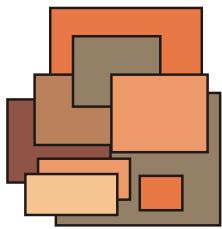




Angel EX



Installation & Programming Guide

Ver. 1.0

Section #1 - Introduction

| | Section | Page |
|----------------------------|---------|------|
| Welcome! | 1.01 | 3 |
| Switch Input Signals | 1.02 | 3 |
| General Operation | 1.03 | 3 |

Section #2 - Identification of Controls & Connections

| | | |
|-----------------------------------|------|---|
| EX Main Module | 2.01 | 4 |
| EX-TEL Telephone Module | 2.02 | 5 |
| BDX Bed Control Module | 2.03 | 6 |
| RDS-1 Remote Display Module | 2.04 | 7 |

Section #3 -System Installation

| | | |
|---|------|----|
| Choosing a Suitable Location | 3.01 | 8 |
| Switch Inputs | 3.02 | 8 |
| Connecting the X-10 Tw523 Module | 3.03 | 8 |
| Connecting the PS/2 Keyboard | 3.04 | 9 |
| Connecting a Wireless Headset | 3.05 | 9 |
| Connecting the EX-TEL Telephone Module | 3.06 | 9 |
| Connecting the RDS-1 Remote Display | 3.07 | 10 |
| Connecting the Infrared Blaster | 3.08 | 10 |
| Connecting the BDX-1 Bed Control Module | 3.09 | 10 |
| Connecting the External Speakers | 3.10 | 10 |
| Connecting the ECU to AC Power | 3.11 | 10 |

Section #4 -System Programming

| | | |
|--|------|----|
| Programming Reference | 4.01 | 11 |
| System Programming Overview | 4.02 | 12 |
| Reviewing the Menu | 4.03 | 12 |
| Adding a Menu Component | 4.04 | 12 |
| Programming Speed Dialing Numbers | 4.05 | 12 |
| Learning Infrared Commands | 4.06 | 13 |
| Deleting the Menu Configuration | 4.07 | 13 |
| Using the Volume Pass Through feature | 4.08 | 13 |
| Learning Infrared Commands for the Direct Channel Entry feature | 4.09 | 14 |
| Programming the list of "favorite" channels for Direct Channel Entry | 4.10 | 14 |
| Miscellaneous Utility Functions | 4.11 | 15 |

Welcome!

- 1.01** Thank you for purchasing an Angel EX Environmental Control Unit. The EX line of ECUs and peripherals represents an evolutionary design concept in advanced Environmental Control. Designed in a modular fashion, the capabilities of a system can start out small, and grow as your needs grow also. The EX offers advanced features such as Learning Infrared Capabilities, Wireless Networking of multiple EX systems, Telephone Communications, Remote Display, Bed Control, and remote control of the ECU from a wheel chair or remote location. Our Angel-Net proprietary bus protocol allows communication between peripheral modules opening the door for endless possibilities, and future upgrades. Like all endeavors, the time you dedicate to learning and perfecting your knowledge of the Angel EX ECU system will result in greater satisfaction and enjoyment of this product. Good luck, and thank you for choosing Angel ECU!

1.02 Switch Input Signals

The Angel EX ECU is a switch activated Environmental Control Unit. Two switch signals are required for operation of the system. One input signal, Input A, advances you through the menu one item at a time. The other input signal, Input B, acts as an ENTER function, and carries out the functionality of the last announced (or displayed) menu item. While in a “component menu”, applying and holding a signal on Input A, will return you to the top of the menu rotation.

1.03 General Operation

The EX ECU provides high quality Voice Prompt feedback to the user as a guide for system operation. If the “Voice Prompts” menu item is programmed into the Main Menu rotation, then the user will have the capability of turning the Voice Prompts OFF. This should only be done if the system is equipped with the optional RDS-1 Remote Display. Voice Prompts are automatically turned back to ON if the system reboots. There is also a headset jack on the rear panel of the EX ECU that allows for connection of a wireless headset. If the HEADSET feature is turned ON, then the Voice Prompt feedback will be routed to the Headset jack, and no longer routed to the speaker audio output jack. HEADSET mode is automatically turned OFF upon a system reboot to ensure that Voice Prompts are audible upon power up. If your system is equipped with the EX-TEL telephone module, than it is also possible to talk on the telephone using the wireless headset.

There is no “fixed” main menu structure in the EX ECU. The main menu rotation will be created, from scratch, to reflect the needs and desires of the end user. The system allows you to place (program) Main Menu items in any order that you might desire. This makes operation of the system easier, by allowing faster access to menu items that you use most often. These menu items can be placed near the “top” of the menu rotation, and less steps will be necessary to get to them. Items appear in the menu in the order in which they are programmed. Some menu items, such as the TV or DVD component menus, will have a menu rotation of their own. Component menus have a “fixed” set of menu features, and these cannot be changed. The first menu item in any component, menu or sub menu, is always the “EXIT MENU” item. This makes it easier to leave the sub menu. After the desired menu rotation has been created, you advance forward through the menu items, one at a time, by applying an “Input A” signal. When the menu item of interest has been announced (or is visible in the display), simply apply an “Input B” signal to execute the functionality of that menu item. Note that when advancing through menu items it is not necessary to wait for the menu items Voice Prompt to finish playing before you are allowed to advance further.

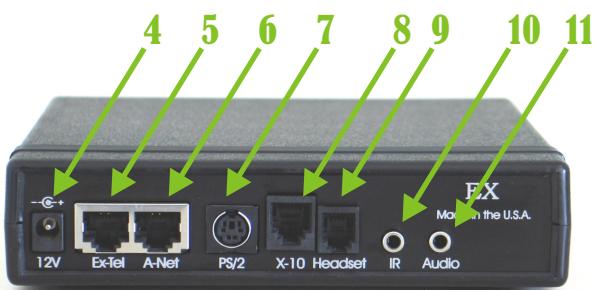
If there is no input signal activity for a period of time, the display will turn off, and the system will return to the top of the Main Menu rotation automatically. This only holds true while the system is in the Main Menu. If you are in a component menu, or sub menu, and input activity ceases, you will not be automatically returned to the top of the Main Menu, and the display will remain active indefinitely. While in a “component” menu, applying and holding a signal on “Input A”, will return you to the top of the component menu rotation. When a component menu item is executed, your position within the menu is not changed, and subsequent “Input B” signals will re-send the same command to the end device.

2.01

Identification of Controls & Connections



Angel EX ECU (Main Module)



1 Infrared Sensor Window - This sensor detects Infrared light patterns and is used to learn Infrared commands from your existing remote controls into the system. When learning the IR commands, point your remote control directly into this Sensor Window.

2 Switch Input Jack - This input jack is a "3.5mm stereo" type that allows for a dual switch input device to be connected to the system. Switch input devices can also be connected to a similar input jack on the RDS-1 Remote Display.
 Sleeve = Common Ground
 Tip = Input Signal A
 Ring = Input Signal B

3 LED Status Indicators - These LEDs provide a visual indication of the current system status.
 Green = System Alive
 Yellow = Shows Activity
 Red = Error Indication

4 Power Input Jack - This 2.1mm barrel type power input jack is the source connection point for main system power. Connect the supplied 12 Volt DC power supply here.

5 EX-TEL Jack - Connect the EX-TEL Telephone module here.

6 Angel Net Jack - The Angel Net Bus is a proprietary communications port that allows connection of various peripheral components, such as the RDS-1 Remote Display.

7 PS/2 Keyboard Jack - This jack allows connection of a standard PS/2 type PC keyboard for programming purposes. The Keyboard can be removed after the initial system setup has been completed.

8 X-10 Jack - Connect the X-10 Tw523 Power Line Interface device here. Required for control of X-10 devices.

9 Headset Jack - This jack allows the connection of a wireless headset. Voice Prompt feedback, as well as Telephone audio can be routed to this wireless headset port.

10 Infrared Output Jack - Connect an Infrared Emitter, or Blaster here, and point towards your audio/video devices.

11 Audio Output Jack - Connect amplified external speakers here. Voice Prompt feedback is routed to this stereo output jack, as well as Telephone audio (providing that the optional EX-TEL module is connected).

2.02 Identification of Controls & Connections



Angel EX-TEL (Telephone Module)



Note - The EX-TEL module was designed to stack directly on top of the main EX ECU module. If your system is equipped with the BDX Bed Control module, be sure to stack the BDX module on top of the EX-TEL module.

1 Built-In Microphone - This built-in microphone can be used to talk on the phone when the system is in "speakerphone" mode. It is recommended, however, that the external tie clip mic is used instead because it will provide considerably better results.

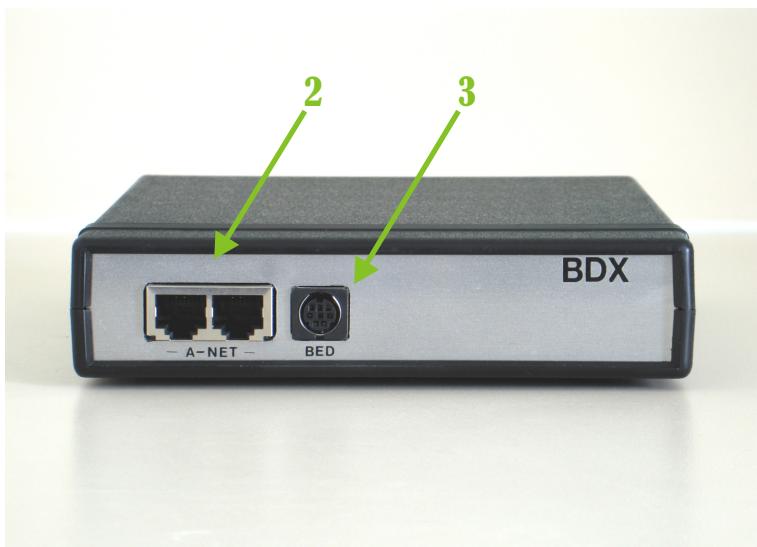
2 ECU Jack - The "ECU Cable" provides the connectivity to the main ECU module. Connect the supplied short shielded cable here, and the opposite end of the cable to the jack labeled "EX-TEL" on the rear panel of the EX (Main Module). Power to the EX-TEL module is also supplied over this cable.

3 External Mic Jack - This jack allows connection of the supplied external tie clip microphone. When the tie clip microphone is connected here, the built-in mic is automatically bypassed.

4 Telephone Line Jack - Connect a standard telephone line cord to this jack and the opposite end of this cable into the wall jack of your telephone line.



2.03

Identification of Controls & Connections**Angel BDX-1 (Bed Control Module)**

Note - The EX-TEL module was designed to stack directly on top of the main EX ECU module. If your system is equipped with the BDX Bed Control module, be sure to stack the BDX module on top of the EX-TEL module.

1 LED Status Indicator - This LED status indicator lights up whenever a bed control relay is energized. Bed control relays are energized as the user applies, and holds, an input signal on the "Input B" input from within the bed control menu. A timer allows signals to be held for a maximum of 8 seconds, before a safety mechanism kicks in to release the relays.

2 Angel Net Jack - The Angel Net Bus is a proprietary communications port that allows connection of various peripheral components, such as the RDS-1 Remote Display. Connect a standard Ethernet patch cable to this jack and connect the opposite end to the "A-Net" jack on the rear panel of the EX ECU main module. If your system is equipped with an RDS-1 Remote Display, connect the RDS-1 to the 2nd port of this jack to extend the bus to the RDS-1. The BDX module receives power from the A-Net bus.

3 Bed Cable Jack - This 8 pin "mini-din" jack allows for connection of the bed cable. Bed control cables are ordered in advance and are custom made to connect to a particular make and model bed. Bed control cables typically connect to the "pendant" port of the bed, and either replace, or supplement, the existing hand control pendant.



2.04

Identification of Controls & Connections**Angel RDS-1 Remote Display**

The wireless version of the RDS-1 Remote Display can be mounted on a wheel chair, and provides a means for transmitting input signals from the chair back to the EX ECU, while receiving your current position in the menu rotation and status messages from the ECU.

1 Switch Input Jack - This 3.5mm stereo input jack allows connection of a switch input device for control of the ECU. Connect a Sip & Puff switch, or other switch device, to this jack to operate the ECU.

Note: Although you can operate the ECU from a switch input device connected to this jack, not all software features are supported from this connection.

2 Angel Net Jack - The Angel Net Bus is a proprietary communications port that allows connection of various peripheral components. Connect a standard Ethernet patch cable to this jack and connect the opposite end to the "A-Net" jack on the rear panel of the EX ECU main module. If your system is equipped with an BDX-1 Bed Control Module, connect the RDS-1 to the 2nd port of the A-Net jack on the rear panel of the BDX-1 module to extend the bus to the RDS-1. The RDS-1 Remote Display receives power from the A-Net bus.

3 Tri Pod Connection - This socket allows for the connection of the "micro pod" tri-pod stand to support the RDS-1 Remote Display.



Installation Procedures

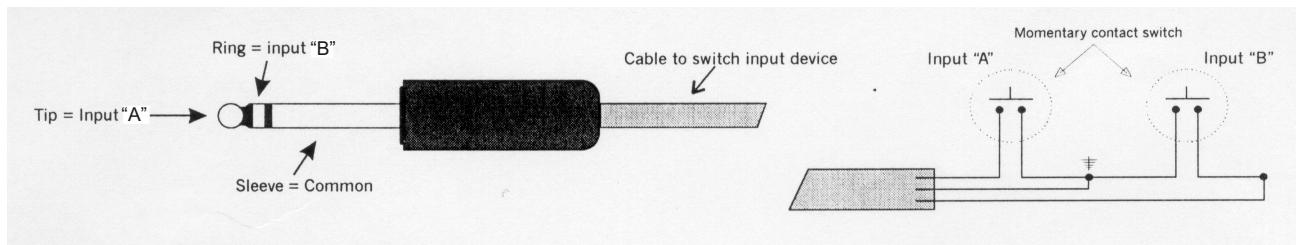
3.01 Choosing a Suitable Location

The Angel EX ECU was designed to be a desk top system. The system is of a modular design, and the modules were meant to be stacked on top of one another in a specific order. Be sure to choose a stable location that will not be prone to any liquid spills, or other hazards. Since there is no built-in display on the EX, it is not necessary to locate the unit in close proximity to the user. The optional RDS-1 Remote Display should, however, be positioned close to the user for maximum benefit. Keep in mind the proper routing of cables, so as not to create a hazard for people moving about the room. It is not recommended to place the unit in a location where it will be exposed to direct sunlight.

3.02 Switch Inputs

The Angel EX ECU operates in a “Direct Drive” mode, which requires two switch input signals. Because it is possible to control the ECU with different types of switch controllers, we have referenced the two possible input signals as “Input A” and “Input B”. The “Input A” signal is always used to advance forward through the menu rotations. For each applied “Input A” signal, you advance one position in the menu rotation. Each time that you advance to the next menu item, the menu item is announced via Voice Prompt Feedback (unless the user has turned this function off), and the new menu item is displayed on the RDS-1 Remote Display, if equipped. When the desired menu item has just been announced (or is visible on the display), applying an “Input B” signal will execute the functionality of the menu item. This may directly turn On/Off a device, or it may take you to a Sub Menu that offers a new rotation of menu items.

The switch input jack is located on the front panel of the EX ECU, and is a Stereo 1/8” sub-mini jack (3.5mm). The connections are detailed below.



Connecting the X-10 TW-523 Module

3.03 The Angel EX ECU uses the “X-10” powerline carrier remote control system to control home lighting & appliances, etc. In order to use the “X-10” capabilities, It is first necessary to connect the “TW-523” powerline interface module to the appropriate connector on ECU’s rear panel. A standard 4 conductor telephone type modular line cord is used for this purpose. Plug one end of the modular line cord into the jack on the bottom of the TW-523 module. Plug the other end of the line cord into the jack labeled “X-10” on the ECU’s rear panel. Next, plug the TW-523 module into a nearby 120 Volt outlet.

NOTE: DO NOT plug the TW-523 module into a surge protector, or a power strip that incorporates surge suppression, as this will attenuate the X-10 signals, possibly rendering the X-10 functionality inoperable.



Installation Procedures

3.04 Connecting the PS/2 Keyboard

It is necessary to connect a standard PS/2 type PC keyboard to the system in order to program the menu configuration. After the system has been programmed, the Keyboard can be disconnected. The Keyboard is not needed for normal system operation. The PS/2 Keyboard port is located on the rear panel of the EX Main Module as depicted below.



3.05 Connecting a Wireless Headset

The Angel EX ECU supports the connection of a wireless headset so that the Voice Prompt feedback can be heard from a remote location. This allows the ECU to be remotely controlled. If your system is also equipped with the optional EX-TEL telephone module, then you may also converse on the telephone via the wireless headset. Plug the headset into the jack labeled "Headset" as depicted above. Note that this is a standard size handset jack. In order for the headset to become "active", the system must be placed into "HEADSET Mode" by the user.

3.06 Connecting the EX-TEL Telephone Module

The EX-TEL module is an optional module that provides Telephone Communications capabilities to the EX ECU. The EX-TEL module ships with a special short shielded cable that is used to connect the module to the ECU. Connect one end of this cable to the jack on the rear panel of the EX ECU that is labeled "EX-Tel". Connect the opposite end of this cable to the jack on the rear panel of the EX-TEL that is labeled "ECU". The EX-TEL module should be stacked directly on top of the EX ECU module. The EX-TEL module receives power through this cable connection. Connect your Telephone line to the jack labeled "Tel Line" on the rear panel of the EX-TEL module. Connect the Tie Clip Microphone to the jack on the rear panel of the EX-TEL module that is labeled "MIC". Although it is not necessary, it is recommended that the Tie Clip MIC be used and clipped onto the users shirt as close as possible to the user. This will provide high quality audio for Telephone calls.



Installation Procedures

3.07 Connecting the RDS-1 Remote Display

The optional RDS-1 Remote Display connects to the ECU using a standard Ethernet patch cable. Connect one end of the Ethernet patch cable to the jack on the bottom of the RDS-1 Remote Display, and connect the other end of the cable to the jack labeled “A-Net” on the rear panel of the EX Main Module.

NOTE: If your system is also equipped with the BDX-1 Bed Control module, then it will be necessary to connect the RDS-1 Remote Display to one of the “A-Net” ports on the rear panel of the BDX-1 Bed Control Module. A short Ethernet patch cable should then be used to connect the other “A-Net” port on the BDX-1 module to the “A-Net” port on the rear panel of the EX Main Module. The A-Net Bus will then be able to provide power and communications to both the BDX module and the RDS-1 display.

3.08 Connecting the Infrared Blaster

In order for the system to re-produce learned Infrared commands, it is necessary to connect an Infrared Blaster to the IR port on the rear panel of the EX Main Module. This jack is a 3.5mm Mono type sub-mini jack. Connect the IR Blaster, and secure the LED end of the Blaster so that it has a clear line of sight towards the Infrared devices that you are attempting to control.

3.09 Connecting the BDX-1 Bed Control Module

The optional BDX Bed Control module provides 6 functions of bed control to many popular electric beds. Bed control cables are ordered in advance and custom made to connect to a particular make and model bed. There is an 8 pin mini-din connector on the rear panel of the BDX Module where the bed cable is to be connected. The opposite end of the bed control cable will connect to the “hand control pendant port” on the bed.

A short Ethernet patch cable should be connected to the jack labeled “A-Net” which is found on the rear panel of the EX Main Module. The other end of this patch cable should be connected to one of the A-Net jacks on the rear panel of the BDX module. The A-Net port provides power and communication to the BDX module.

3.10 Connecting the External Speakers

Unpack the external amplified speakers, and connect the 3.5mm stereo audio cable to the jack that is labeled “Audio” on the rear panel of the EX Main Module. Connect the power cable for the speakers as required.

3.11 Connecting the ECU to AC Power

This should be the last step in installing the ECU. Make all other connections before connecting the ECU to AC power. The ECU uses an external UL approved AC power adapter to power the system. Depending on the configuration of your system, you will receive one of two possible models of AC power adapter. Unpack the power adapter, and connect the 2.1mm barrel connector to the power jack on the rear panel of the EX Main Module. Connect the AC line side of the power adapter to an AC wall outlet. Note that there is no power On/Off switch on the ECU. The ECU is designed to be powered on at all times. If you will not be using the ECU for an extended period, be sure to unplug the power adapter from the AC wall outlet.

NOTE: The EX ECU, like all electronic equipment, is susceptible to power spikes on the AC line, as well as nearby Lightning strikes. If it becomes necessary to “reboot” the ECU, simply unplug the 2.1mm barrel connector from the port on the rear panel of the EX for about one minute, then re-connect again to reset the system.

Connect AC adapter here →





4.01 Programming Reference

EX Programming Reference

Press "Escape" to Enter Programming Mode

<http://www.angelecu.com>

Press "F4" to Exit Programming Mode

Press "F1" for Help

Press 1 to review the currently programmed menu items

Press 2 to add a menu component

Press 3 to program speed dial numbers - 2 digits required

Press 4 to Learn Infrared Commands

Press 5 to program IR commands for FAVORITES

Press 6 to program the list of Favorite Channel Numbers

Press 8 to toggle the EDIT NAME flag

Press 9 to Delete the Menu Configuration

X-10 Devices

| Index # | Description |
|---------|----------------------|
| 01 | - Lamp |
| 02 | - Bedside Lamp |
| 03 | - Bookshelf Lamp |
| 04 | - Ceiling Pendant |
| 05 | - Chandelier |
| 06 | - Desk Lamp |
| 07 | - Fan Lamp |
| 08 | - Flood Lamp |
| 09 | - Floor Lamp |
| 10 | - Hallway Light |
| 11 | - Overhead Light |
| 12 | - Night Light |
| 13 | - Pedestal Lamp |
| 14 | - Porch Light |
| 15 | - Recessed Lighting |
| 16 | - Specialty Lighting |
| 17 | - Sconce |
| 18 | - Table Lamp |
| 19 | - Tiffany Lamp |
| 20 | - Track Lighting |
| 21 | - Vanity Lamp |
| 24 | - Ceiling Fan |
| 25 | - Fan |
| 26 | - Door |
| 39 | - Nurse Call |

Component Menus

| Index # | Description |
|---------|------------------|
| 28 | - Amp Menu |
| 29 | - Cable Menu |
| 30 | - CD Menu |
| 31 | - DVD Menu |
| 32 | - MP3 Menu |
| 33 | - Radio Menu |
| 34 | - Satellite Menu |
| 35 | - Tuner Menu |
| 36 | - TV Menu |
| 37 | - VCR Menu |

Optional Control Menus

| Index # | Description |
|---------|-------------------------|
| 22 | - Air Conditioning Menu |
| 23 | - Bed Control |
| 38 | - Headset |
| 40 | - Telephone |
| 41 | - Voice Prompts |
| 42 | - User 1 Menu |
| 43 | - User 2 Menu |
| 44 | - User 3 Menu |
| 45 | - User 4 Menu |
| 46 | - User 5 Menu |

4.02 System Programming

It is recommended that before you begin programming the system, that you have thoroughly planned the menu structure, and sketched out the proposed layout for the end users approval. Menu configurations cannot be edited, and changes require deletion of the configuration, and re-programming from scratch. Additions to an existing configuration can be made at any time without reprogramming the entire configuration, however any new menu items will be located at the very bottom of the menu rotation, and this may not be in the best interest of the user.

When the Menu Configuration is deleted, only the menu data itself is deleted. Any learned Infrared codes, or speed dial numbers that were previously programmed, will still exist in the system. This makes re-configuring the main menu a simple task.

Programming the system is accomplished by placing the system into the “Programming Mode”. A standard PS/2 type PC keyboard must first be connected to the PS/2 port on the rear panel of the EX main module. Also, be sure to have a set of amplified speakers connected to the audio output jack on the rear panel of the EX Main Module. Interaction with the Programming Mode is made via Voice Prompt feedback, and not with the RDS-1 Remote Display. Enter the programming mode by pressing the **ESCAPE** key on the keyboard. After you have completed the programming session, you will need to exit the programming mode by pressing the “F4” key.

While you are in the Programming Mode, you can press the “F1” key for some help. After completing any task within the programming mode, you are returned to the top of the programming hierarchy, also referred to as the “Home Level”.

Refer to page 11, the EX Programming Reference, while considering the following sections.

4.03 Review the Menu

From the “Home Level” of programming, press the “1” key to review the menu. Any menu items that are already programmed, will be announced via voice feedback. The menu items will be announced in the order that they will appear in the Main Menu.

4.04 Adding a Menu Component

From the “Home Level” of programming, press the “2” key to add a menu component to the Main Menu. A maximum of 63 items can be programmed into the Main Menu rotation. Index numbers have been assigned to all components that could possibly be added to the Main Menu rotation. When you press the “2” key, you will be prompted to enter the two digit index number that represents the component that you wish to add to the menu. After you enter the two digit index number, the component type will be announced, for verification, and you will be asked to confirm your selection. You must press either the “Y” key (for Yes), or the “N” key (for No) to continue. In either case, you will be returned to the Home Level of the Programming Mode.

If the component that you are adding is an X-10 (powerline carrier) type, you will be prompted to specify the additional parameters. For “House Codes” enter a single character A - P. For “Unit Codes” enter two digits, 01 - 16.

4.05 Programming Speed Dial Numbers

From the “Home Level” of programming, press the “3” key to program speed dial numbers.

A total of 16 numbers may be programmed for use as “Speed Dial” numbers. You will be prompted to enter the two digit “index” number that represents the speed dial number you will be programming. Enter two digits 01 - 16. You will then be prompted to enter the digits that will be dialed, followed by the **ENTER** key. You can insert a 3 second pause by pressing the “P” key. This can be useful if it will be necessary to dial an extension number from a business’s Automated Attendant. The maximum length of the speed dial number is 255 digits including any PAUSE characters.

When the user is advancing through the Telephone Menu rotation, the underlying phone number for a “Speed Dial” will be announced if the user pauses for 8 seconds “over” the Speed Dial of interest. The number is only read back a single time for a given Speed Dial.

4.06 Learning Infrared Commands

Infrared commands will be learned from your existing remote controls. Be sure to have fresh batteries installed in your remote controls, and have them available before continuing.

From the “Home Level” of programming, press the “4” key to learn infrared commands.

Before you are able to learn any infrared commands, it is necessary to complete the menu rotation programming. When you press the “4” key to learn infrared commands, the system will prompt you to learn the Infrared Commands for the first “Infrared” device that was found as being programmed into the menu rotation. This being the case, the system only asks you about learning the Infrared commands for the devices that you are currently using. When prompted, you must press either the “Y” key (for Yes), or the “N” key (for No) to continue. A sample of a remote control function from the remote control for the device that you will be learning will be necessary for the purposes of carrier frequency calculation. You will be prompted to point your remote control directly into the sensor window on the front panel of the EX main module. Position your remote control about 6 inches away from the sensor window, but be sure that the remote is pointed directly towards the sensor window. Also be sure that you have turned off any plasma TV sets, or other devices that may interfere with the learning process. The Yellow status LED on the front panel of the EX will light steady when the system is ready for you to “shoot” the command for learning. If this LED does not light steady, or lights only briefly, it is an indication that the system was triggered by some other device, or environmental factor within the room. Solve this issue before trying again. The system will prompt you for the various functions that pertain to the menu rotation for the device that you are learning commands for. When prompted, press the button on the remote control for the function that is being asked for. At the end of each component type menu, there are two generic functions, “F1” & “F2”. These two functions are provided so that you may learn commands from the remote control for functions that we have not planned for in the menu.

You may press the “S” key to skip any command that you are not interested in learning.

Note: In each component menu there are Volume Up, Volume Down, and possibly Mute functions. These functions have been included in every component menu so that the user does not have to exit a device menu to adjust the volume. It was intended for you to learn the Volume & Mute commands for the TV, or perhaps a central Amplifier / Receiver, in each component menu for this purpose. Since the Infrared Carrier Frequency is most likely not the same for the TV/Amp and the device (possibly CD Player, etc.) that you are learning, it is recommended that you skip the Volume Up, Volume Down & Mute commands when learning commands for a device such as a DVD player, or CD player, and then make a second attempt at learning commands for the same device, only this time... use the remote control for the TV / Amplifier, and only learn the Volume & Mute commands while skipping all others that were previously learned. Using this method, the correct carrier frequency will be calculated and saved with the appropriate commands.

4.07 Deleting the Menu Configuration

From the “Home Level” of programming, press the “9” key to delete the menu configuration.

You will be warned, and prompted to confirm your selection. You must press either the “Y” key (for Yes), or the “N” key (for No) to continue. You will be returned to the “Home Level” of programming so you may continue to create a new Main Menu configuration.

4.08 Using the Volume Pass Through feature

From the “Home Level” of programming, press the “7” key to execute the “Volume Pass Through” feature.

You will be prompted to confirm your selection. You must press either the “Y” key (for Yes), or the “N” key (for No) to continue. After the function is complete, you will hear “OK”, and you will be returned to the “Home Level” of programming.

What does it do? In every “component” menu (TV, DVD, etc.) there is a MUTE, VOLUME UP, and VOLUME DOWN function. In typical scenarios, the user will be using the TV to hear the playing media. This means that it would be necessary to adjust the TV volume if you were in the DVD menu, watching a DVD, and wanted to adjust the volume. To make this work, you would need to learn the Infrared commands for the DVD menu while skipping the VOLUME functions, then learn the Infrared commands again for the DVD menu only this time using the TV remote control, and skipping all functions EXCEPT the VOLUME commands. So, on the second

attempt at learning the commands for the DVD menu, you are actually only learning the MUTE, VOLUME UP, and VOLUME DOWN commands while skipping all other previously learned commands. The reason why two different attempts are necessary is because the Infrared Carrier Frequency for the component you are learning (the DVD in this example) may be different from the Carrier Frequency of the TV. If you are using several components in your system, you will have to learn the TV volume functions in each component menu that you are using.

The VOLUME PASS THROUGH feature copies the previously learned Infrared Mute & Volume commands from the TV menu indexes, and “pastes” those commands into every other component menu for you, thus simplifying your installation. So, after executing the Volume Pass Through feature, it is no longer necessary to make a second pass of learning Infrared commands for the Mute & Volume functions of the various component menus. It is, of course, necessary to learn the Infrared commands for the TV first, before executing the Volume Pass Through feature.

If you are using a central amplifier, or a “home theater amplifier” to hear your media, and not using the TV speakers, then you can learn the Amplifiers MUTE, VOLUME UP, and VOLUME DOWN functions into the “TV” menu first, then execute the Volume Pass Through feature. This will copy the Amplifiers volume functions into all other component menus, then learn the Infrared commands for the TV menu using the TV remote control afterwards. (Assuming that you want the TV menu to control the TV volume)

4.09 Learning Infrared commands for Direct Channel Entry feature

The DIRECT CHANNEL ENTRY feature provides a list of 10 channel “favorites” that are accessible from the Cable, and Satellite menus.

From the “Home Level” of programming, press the “5” key to learn the infrared commands for this list of favorite channels. You will be learning these commands from the remote control of the device that “tunes in” the channel. This may be the Cable Box, or it may be the Satellite Box, or in some cases this may be the TV remote. There is only one list of 10 favorite channels that provide the Direct Channel Entry feature, even though it is available in both the Cable & Satellite menus.

You will be prompted to confirm your selection. You must press either the “Y” key (for Yes), or the “N” key (for No) to continue. After responding with the “Y” key, you will be asked to point the remote control at the sensor on the front panel of the EX ECU and to press a button so that the Carrier Frequency can be calculated. You will then be prompted to press the buttons 0 - 9, and finally the ENTER button. Make sure that you position the remote control DIRECTLY into the sensor window, about 6 inches away from the window. Programming the actual list of favorite channels is covered in the following section. 4.10

4.10 Programming the list of Favorite Channels

From the “Home Level” of programming, press the “6” key to program the list of favorite channels. The ECU will respond with “Direct Channel Entry”. Do you wish to continue?

You must press either the “Y” key (for Yes), or the “N” key (for No) to continue. After responding with the “Y” key, you will be asked to Enter the index number of the Channel you wish to program. Since there are 10 channels that can be programmed, you will be entering the digits 01 - 10. You will then be asked to “Enter the Digits to Dial, press Enter to complete the sequence”. Note that the index number is a two digit number, so index “3” needs to be entered as “03”. After you enter the Channel Number, and press Enter, the Channel Number will be read back to you for confirmation. You will then be prompted to continue. Note that the channel number has already been saved, and you are being asked if you want to continue to program another Channel Number.

4.11 Miscellaneous Utilities

From the “Home Level” of programming, press the **LEFT BRACKET** key immediately followed by the “S” key to DELETE ALL SPEED DIAL ENTRIES. This cannot be undone. You will be prompted to enter either a “Y” to continue, or an “N” to abort.

From the “Home Level” of programming, press the **LEFT BRACKET** key followed by the **RIGHT BRACKET** key to delete ALL learned Infrared Commands. This cannot be undone. You will be prompted to enter either a “Y” to continue, or an “N” to abort.