



**Home Director Installation and Service Manual**

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**First Edition June 1998**

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Notices

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### Installation

The Home Network Controller and Home Network Connection Center are intended for installation only by IBM authorized installers.

### Safety Information

#### Intended use.

The IBM Home Director system (hardware and software) is intended for use in standard residential construction. Supported system functions are listed in the IBM *Official Published Specification* for Home Director.

The Home Director system is not intended for commercial use. Certain types of equipment should not be used in conjunction with the Home Director system. Examples of these devices include, but are not limited to, medical equipment (heart monitor, dialysis, oxygen equipment, etc.) and critical environmental systems (chemical exhaust fans, waste control systems, freeze protection systems, etc.). Additional user precautions should be taken where excessive hot or cold temperatures could result in potentially harmful conditions for individuals.

#### Lifting.

Two people are required to move or lift the unit. To avoid possible injury while moving or lifting the unit, ask another person to help you. Do not use the door handles to lift the Home Network Controller.

#### Removals and Replacements.

Before you begin any removal or replacement procedure in this document, be sure to follow these steps:

- 1 Turn off the 15 amp Home Director circuit breaker in the main circuit panel.

If you are working with HVAC components (thermostat wall display switches or thermostat controllers) make sure you turn off the circuit breaker that controls those devices before you begin.

- 2 Remove the Home Network Controller front panel.



#### Caution!

*Two people are required to move or lift the unit. To avoid possible injury while moving or lifting the unit, ask another person to help you.*

*Il faut deux personnes pour déplacer ou soulever l'unité. Pour éviter des blessures potentielles pendant le déplacement ou le levage de l'unité, demandez de l'assistance.*



#### Danger!

*Failure to follow the instructions in "Removals and Replacements" may result in personal injury and damage to system components.*

*Si vous ne suivez pas les directives de la section sur les retraits et les remplacements, vous risquez de vous blesser et d'endommager les composantes du système.*

**a** Unlock the panel.

**b** Lift up on the handles in the front panel. When the panel stops, pull it straight out from the cabinet.

**3** Wait 2-3 minutes for the Uninterruptable Power Supply (UPS) to shut down the computer. The UPS will click and the green power light will no longer be lit when the UPS turns off.

**4** Unplug the UPS from the outlet inside the Home Network Controller cabinet.

Failure to follow these steps may result in personal injury and damage to system components.

**Electrostatic Sensitive Devices.**

Some components in the Home Director system are sensitive to electrostatic discharge. Use an electrostatic discharge (ESD) strap to establish a personal ground. If you do not have an ESD strap, establish a personal ground by touching a ground point before handling a static-sensitive part.

**Agency Notices**

Underwriters Laboratories (UL) requires that a minimum of 1/4" space be maintained at all times between Class 2 DC power cables. All Class 2 DC power cables in this installation must conform to this requirement.

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## Conventions used in this book

### Highlighting

There are several ways that text is highlighted in this book. Each highlighting convention has a specific purpose.

Highlight	Purpose
<b>Bold</b>	Bold font is used to identify items on the screen which you should click or double-click. Bold font is also used in headings, table titles, and numbered lists.
<i>Example</i>	Example font is used to show text that you need to type from your keyboard.
<i>Italic</i>	Italic font is used to show proper names of programs or books. Italic font is also used in table footnotes and sidenotes.
"Quotes"	Quotation marks are used to identify window, screen, and heading names.
<u>Underline</u>	Underline font is used to call special emphasis to a particular word or instruction.





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## Chapter 1: Installation

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# Installation

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## General Installation Information

This document contains information for the simultaneous installation of the IBM Home Director Machine Type 0142 models 100 and 200. Additional information is provided in a separate document for model 200 installations.

### Major system component descriptions

This section is provided for your reference. It contains a brief description of each major system component in the Home Director product.

**Home Director Home Network Controller Cabinet.** Cabinet housing the dedicated processor, Uninterruptable Power Supply (UPS), HVAC Controller Chassis, and powerline signal interface.

Subcomponent	Description
<b>Home Network Controller Processor</b>	Dedicated processor providing an intelligent link to the home security, HVAC, and lighting systems. Provides a television based user interface including a wireless mouse.
<b>UPS</b>	Uninterruptable Power Supply providing battery backup and surge protection for various system components.
<b>HVAC Controller</b>	Provide control of two HVAC systems zoned by equipment.
<b>Powerline Communications Interface Module</b>	Provides the communications interface between the Home Network Controller and installed remote lighting switches.

**Home Network Connection Center cabinet.** Cabinet housing the Residential Telcom Module, Coaxial Distribution Module, Computer Networking Module, and Television Distribution Module.

Subcomponent	Description
<b>Residential Telcom Module</b>	Connection center for voice and data communication lines. Supports flexible distribution of 4 lines to up to 24 wall plates.
<b>Coaxial Distribution Module</b>	16 internal (input) video connections, 16 external (output) video connections, 2 DBS coaxial input and output connections, 1 closed circuit camera input connection, 1 CATV/ANT connection.
<b>Computer Networking Module</b>	10 Base-T 4 port Ethernet connection hub.
<b>Closed Circuit Television Distribution Module</b>	Supports connection of up to 4 closed circuit cameras to the coaxial distribution module.



**Note**

*In all cases, refer to the National Electric Code (N.E.C.), Canadian Electric Code (if appropriate), and other local building codes for acceptable practices.*

**Wiring room location**

The wiring room is the location where all wiring is terminated, interconnected, and the Home Director Home Network Controller and Home Network Connection Center are mounted.

The wiring room must be a clean interior space, temperature controlled and secure. Install the components only in a dry (non-condensing) location as described in the National Electric Code (N.E.C.).

The following are acceptable locations:

- A dedicated wiring closet (ideal installation).
- A storage closet (if appropriate space is available).
- A basement or utility room which is considered dry as described in the N.E.C.

**DO NOT** install the components in a garage, crawl space, or exterior enclosure. These are not IBM approved installation locations. **DO NOT** install the components in a fire rated wall.

The volume and ventilation characteristics of the wiring room must allow for 70W heat dissipation without exceeding the ambient temperature and humidity requirements.

**Ambient Temperature**

<b>Operating</b>	16 °C to 32 °C (60.8 °F to 89.6 °F)
<b>Non-operating</b>	10 °C to 43 °C (50 °F to 109.4 °F)

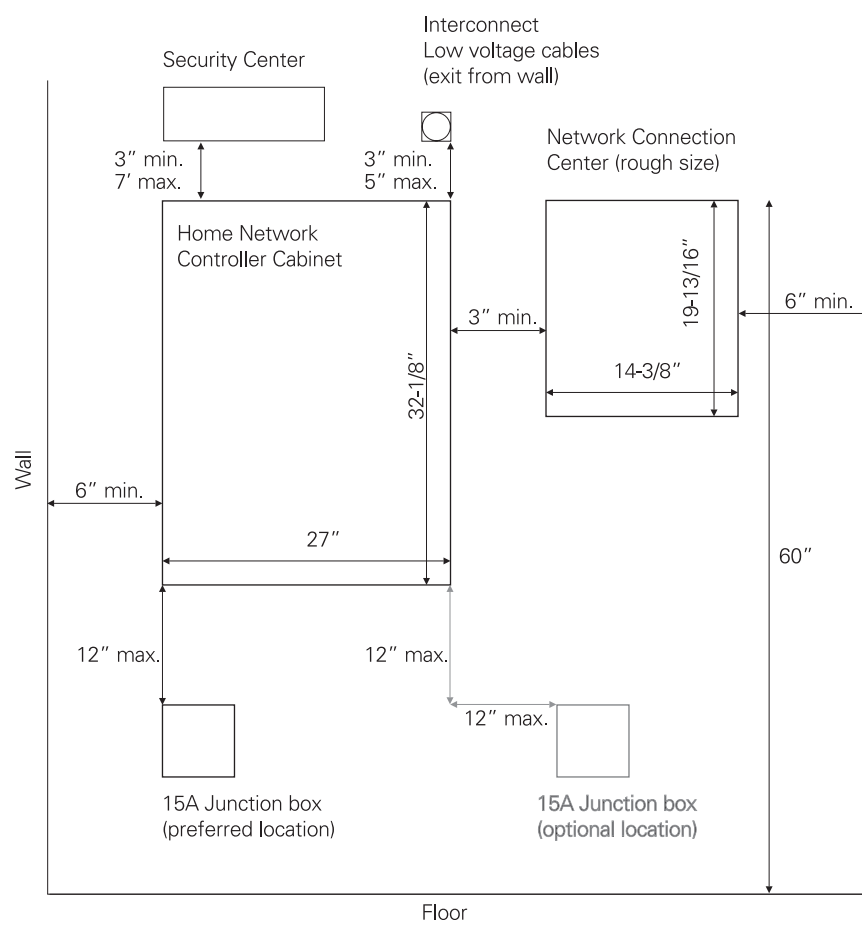
**Humidity**

<b>Operating</b>	8% to 80%, no condensation
<b>Non-operating</b>	8% to 80%, no condensation

# Installation

## Measurements

The basic installation has the following general components and preferred measurements.



The preferred junction box location is shown. If the junction box cannot be installed as shown, it can be located within a 12" radius of the low voltage opening on the bottom left or right corner of the Home Network Controller cabinet.

## Tools required

The following list contains most of the tools you will need during the installation. Tools are not listed in the order they are needed.

### Installation.

- 18 AWG stranded wire stripping and crimping tool
- Box end wrench (5/16")
- Cat 5 cable tester
- Coax stripping tool and crimping kit for RG-6 cables with F59 connectors
- Drill with:
  - #43 bit for drilling pilot holes for #8 and #10 screws

- 1" bit (minimum recommended) for low voltage cable exit from the Home Network Controller cabinet
- Laptop computer for software configuration (with properly configured Ethernet hardware and software)
- Level
- RJ45 Crimping kit
- SAE Socket set
- Screwdrivers (#1 Phillips, #2 Phillips, small flat head, large flat head)
- Small paperclip for setting the video modulator channel
- Small test television with coax (RF) input and RCA video (composite) input
- Wire cutter

**Troubleshooting.**

- Cat 5 cable tester
- Coax stripping tool and crimping kit for RG-6 cables with F59 connectors
- Laptop computer (with properly configured Ethernet hardware and software)
- RJ45 Crimping kit
- Multi-test meter
- SAE Socket set
- Screwdrivers (#1 Phillips, #2 Phillips, small flat head, large flat head)
- Small test television with coax (RF) input and RCA video (composite) input.
- Two button (basic) Personal Computer Mouse
- Wire cutter

*Recommended troubleshooting FRU parts:*

- Home Director wireless remote
- DC patch cord for Home Network Connection Center
- Thermostat wall display controller
- Dedicated processor
- RS232/RS485 serial converter card (FRU # "01K1096" - for thermostat control modules)
- At least 1 PCB/ASM thermostat control module (FRU# "10L7118")

# Installation

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## Framing space in an interior wall for the Home Network Connection Center



### Note

*When installed, the Home Network Connection Center cabinet must protrude 1-1/4" from the finished face of the drywall. There must also be 1/4" of open space behind the cabinet.*

The Home Network Connection Center must be located according to the information in "General Installation Information" on page 3.

### Framing requirements

The outside dimension of the cabinet is 19-1/2"H x 14-1/4"W x 4-1/2"D.

- The cabinet must be lagged into the side studs with required mounting studs on both sides (normal studs on 16" centers). No top or bottom framing is required.

**NOTE:** DO NOT mount the cabinet in a fire rated wall.

- The top of the cabinet should be 60" from the floor (recommended).
- When installed, the Home Network Connection Center cabinet must protrude 1-1/4" from the finished face of drywall (1-3/4" from front edge of wooden stud before 1/2" drywall is installed).
- A minimum of 1/4" of open space is required behind the cabinet.

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## Framing space in an interior wall for the Home Director Home Network Controller



### Note

*When installed, the Home Network Controller cabinet (with front panel installed) must protrude 2-7/8" from the finished edge of the wall.*

Make sure you have read the information in the section "General Installation Information" on page 3 before you begin this procedure.

### Framing requirements

The Home Network Controller is designed for installation in the wall and on the wall. These framing instructions apply to in wall installations only.

The outside dimensions of the unit are 27" W x 32-1/8" H x 6-1/2" D.

Frame a space to accommodate the cabinet with a snug fit on all four sides.

**NOTE:** DO NOT install the cabinet in a fire rated wall.

When installed, the Home Director Home Network Controller cabinet will be lagged into the side studs.

# Installation

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## Installing the Home Network Connection Center cabinet (rough-in)

### Parts list

Make sure you have the following items from IBM before you begin:

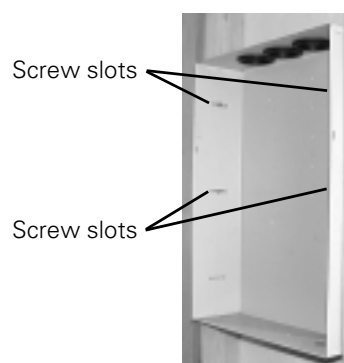
Part Number	Description
<input type="checkbox"/> 03K8671	Home Network Connection Center cabinet

4 - #10x 3/4" wood screws are recommended for installation but are not included.

### Installing the cabinet in the wall

- 1 Remove the Home Network Connection Center cabinet from the packaging.
- 2 Place the cabinet in the wall space left by the framer. The top of the cabinet has large (2.5") openings with black rubber grommets.
- 3 Use a standard level to level the cabinet before you mark for the screw holes. Use the top two slots on each side for mounting.
- 4 Use the center of each slot in the cabinet (shown below) to mark each stud for 2 screws on each side. Centering the screw in the slot will allow you to adjust the cabinet during the trim process if necessary.
- 5 Remove the cabinet from the wall and drill pilot holes.
- 6 Place the cabinet in the wall and secure it with the four #10 x 3/4" screws.

Screws should be tightened until they are flush with the cabinet. When the cabinet is properly installed, it should look like this:



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## Installing the Home Network Controller cabinet (rough-in)

If you intend to install the cabinet on the finished wall, follow the instructions in “Pre-wiring requirements and best practices” on page 12 and “Installing the Home Network Controller cabinet (finished wall)” on page 21.

Make sure you have read the information in the section “General Installation Information” on page 3 before you begin this procedure.

### Parts list

Make sure you have the following item included with the Home Network Controller before you begin:

Part Number	Quantity	Description
<input type="checkbox"/> 03K8675	1	Home Network Controller Cabinet: <ul style="list-style-type: none"><li>• housing</li><li>• door</li><li>• key</li><li>• mounting hardware</li></ul>

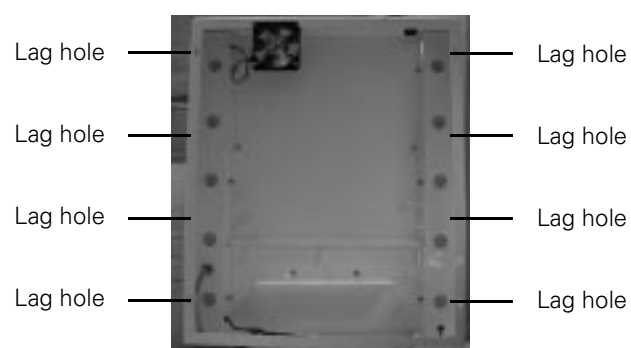
To install cabinet in an interior wall space left by the framer, follow these instructions:

- 1 Remove the Home Network Controller cabinet from the packaging.  
Use the key to unlock the front panel of the cabinet. Do not remove the key from the lock.
- 2 The front panel is held into place by pins which lock into keyholes in the cabinet. Remove the front panel by lifting it upward and then outward. Set the panel in a safe place.
- 3 If you intend to run low voltage cables through the bottom of the cabinet, remove the plug on the right side of the cabinet bottom. Locate the extra plastic grommet and install it in the hole.
- 4 Place the cabinet in the wall space left by the framer. Do not uncoil the AC power pigtail from the cabinet.  
When installed, the cabinet (without the front panel installed) must protrude 1-1/2” from the finished edge (including drywall) of the wall.
- 5 Make sure the cabinet is level. Use small wood shims if necessary.



## Installation

- 6** Mark the location for 4 lag screws and low voltage cable openings into the framing.



- 7** Remove the cabinet from the wall and drill pilot holes at the marks.  
Low voltage holes should be at least the same size as the opening in the cabinet.  
Use nail plates as required by code if necessary in all cable hole locations.
- 8** Reinstall the cabinet in the wall and use a 5/16" wrench to tighten the screws until they are flush with the cabinet.
- 9** Re-install the front panel and lock it. Do not remove the key from the lock.  
When you have completed these steps, follow the instructions in "Pre-wiring requirements and best practices" on page 12.

---

## Pre-wiring requirements and best practices

Make sure you have read the information in the section “General Installation Information” on page 3 before you begin this procedure.

### Parts list

Make sure you have the following items included with IBM Home Director before you begin:

Part Number	Quantity	Description
<input type="checkbox"/> 10L7407	1	Power-line Blocking / Coupler
<input type="checkbox"/> 10L7408	1	Power-line Signal repeater
<input type="checkbox"/> 03K8672	3	Programmable 4 button wall controller
<input type="checkbox"/> 03K8674	5	Dimmer switch
<input type="checkbox"/> 10L7430	1	Infrared remote (wall) interface
<input type="checkbox"/> 10L7417	2	Thermostat wall display switch

The information in this section is required during the initial wiring phase for the new building installation. Items in the list which are not provided by IBM are the responsibility of the Licensed Electrician or Home System Integrator to purchase.

### AC Power Requirements

#### Required:

- 1 The main circuit box must include four breaker positions on each side at the top of the box, left open.
  - a Two top breakers on each side will be used to install a Blocking Coupler and a Signal Repeater (supplied with IBM Home Director), which improves the performance of the powerline signal communication.
  - b Two breakers on one side will be used to install a whole house surge protector (not supplied with IBM Home Director). The breakers on the other side should remain open for future expansions. The electrician should procure and install these devices.
- 2 A dedicated 15 amp circuit (breaker labeled IBM Home Director Controller) should be run with 12 gauge or larger wire (for maximum control signal integrity) to an in-wall junction box you install within 12” of the bottom of the Home Network Controller cabinet.

This will allow you to terminate the AC power armored pigtail provided inside the cabinet. The junction box, face plate, and right angle clamp are not provided.

## Installation

- 3 The Licensed Electrician must supply an insulated neutral (white wire) and grounding conductor (bare or green wire) to each junction box where 4 button controllers and dimmer switches are anticipated. This configuration is required for the automated wall controllers and dimmer switches to function.

**Recommended:**

- 4 All non-automated switches are recommended to be Leviton Decora style in white or ivory to match the style of switches shipped with Home Director.
- 5 Lighting circuits should be isolated from other circuits. This is the preferred installation method but it is not required.
- 6 Three-way switching situations should be hard wired per code (e.g., top and bottom of stairs).

Although four-way and higher scenarios can be accomplished more easily with powerline signaller and switch combinations, we advise caution when creating any wiring configuration that forces the homeowner to use powerline carrier (e.g. X-10) switches and prevents them from substituting ordinary switches.

### Low voltage wiring information

**Required:**

- 1 Category 5 cables (two for each drop recommended) should be home-run to the Wiring Room from any room where data, fax, computer or telephone may be desired. Include drops for areas such as family room, kitchen or bedroom night stand locations.
- 2 RG-6 quad shielded coaxial cable should be run to each room where the Category 5 cable terminates (e.g. where video, HDTV, cable, modem or IR-based distributed controls are desired). Two cables per drop are recommended.  
  
One double-gang junction box is required in each location where the homeowner may someday wish to use the Infrared Remote Interface with the IBM Home Director Channel.
- 3 IBM Home Director does not require fiber optic cable or any low-voltage wire to the light switch locations.
- 4 18 gauge, four-conductor cable requirements:
  - a One 18 gauge, four-conductor cable is required from the Wiring Room to each thermostat location.
  - b One 18 gauge four-conductor cable is required from the Wiring Room to each HVAC system.
- 5 The installer of the HVAC system is responsible to provide one three foot cable coil to the Home Director cabinet location for each thermostat and HVAC connection to be controlled by Home Director. The cables must be clearly labeled with the name of the device to which they are connected.
- 6 One 16-1/2" RG-6 coaxial jumper is required for connection between the video modulator and the remote power injector (RPI) inside the Home Network Controller.

**Required cable fabrication between the Home Network Controller and the Home Network Connection Center:**

The IBM Authorized Home System integrator is responsible to fabricate the following cables during the installation. Cable length will be determined by the distance between the Home Network Controller and the Home Network Connection Center.

- 2 conductor 18 AWG stranded wire suitable for class 2 (low voltage) in wall applications. Ring tongue connectors should be attached to each conductor.
- One 12-1 shielded grounding cable with ring tongue connectors on each end.
- One 568A standard Category 5 RJ45 cable.
- One RJ11 standard telephone cable.
- One RG-6 standard coaxial cable.

Cables should be run through a junction box installed within 3-5" of the planned low voltage opening of the Home Network Controller cabinet. This is necessary so interconnect cables are not hidden when drywall is applied.

Sufficient cable length for connection inside the Home Network Controller and Home Network Connection Center cabinets should be provided at each location. Cables may be rolled and bagged (for protection) or run straight through the junction box.

**Recommended:**

- 1 Additional four-conductor cables are recommended from the Wiring Room to humidification system locations.
- 2 RG-6 coaxial cables should be routed from the Wiring Room to all locations where surveillance cameras may be desired in the future. Each cable should be left unterminated in a blank-plated junction box. Home Director comes pre-configured to support the addition of cameras and modulators.
- 3 The RG-6 coaxial and Category 5 cables may be terminated in the same junction box. However, careful planning may reveal better configurations.  
  
Generally IBM recommends that RG-6 cable be provided to any room that has Category 5 cable.
- 4 Additional Category 5 and RG-6 cables to the media center are recommended.
- 5 RG-6 cables:
  - a One RG-6 cable from the media center to the attic is recommended for FM reception.
  - b One RG-6 cable from the Wiring Room to the attic is recommended for a broadcast television antenna.
  - c Two RG-6 cables from the Wiring Room to an appropriate location are recommended for DBS.
- 6 One two-conductor wire from the Wiring Room to each garage door opener is recommended for future garage door function automation.
- 7 Appropriate wiring is recommended for intercoms.
- 8 Appropriate wiring is recommended for audio speaker locations and in-room wall mounted controls. Speaker wire and low voltage control cables can be run to the Wiring Room if it has the required space for audio distribution equipment.

# Installation

- 9 One Category 5 cable should be run from the Wiring Room to any future touch screen location. Leave a loop behind the wall surface.

## Security system

### Required:

- 1 A professionally installed NAPCO GEM-P9600 security system (with V11HA automation chip) is required for Home Director to correctly report security system status.
- 2 The installer of the security system is responsible to provide one NAPCO PCI-MINI connector and NAPCO "local download" cable to the Home Network Controller. At least one foot of cable is required inside the cabinet. Both items must be supplied with the NAPCO security system to avoid possible damage to equipment.
- 3 Fabricate an 18 AWG or heavier ground wire to connect between the Home Network Controller frame ground and the "EARTH GROUND" terminal in the NAPCO security system cabinet.
- 4 One standard telephone cable must be run between the security system and the Home Network Connection Center.

### Recommended:

- 5 Two 18 gauge four-conductor cables should be run from the Wiring Room to each security touch-pad location. Unused conductors will support future touch-screen technology.
- 6 Interior and exterior motion sensor locations (beyond those required for minimum security system functions) should be pre-wired for any motion or occupancy related sensors that the homeowner may desire in the future.
- 7 Pre-wire for garage door magnetic sensors.
- 8 One two-conductor cable for an interior sounder is recommended for security and automation applications.

## Other

### Recommended:

- Wide conduit pipes should be run between the Wiring Room and any attic, crawl space, or basement to allow for future low-voltage wiring runs.
- Ensure the cables and connectors are protected from damage which may occur during subsequent home construction.
- If the Home Network Controller is going to be mounted on the wall, run the wires from the Home Network Connection Center and security through a junction box at the Home Network Controller location. This will prevent them from being covered by drywall.

---

## Drywall and switches

### Drywall

After the cabinets have been installed and wiring has been run, the drywall must be hung. When the drywall is installed, the Home Network Controller cabinet should be trimmed out with white 1/4 round moulding. No additional trim moulding is required for the Home Network Connection Center.

### Addressing Home Director switches

Complete the following steps before you set the switch addresses:

- 1 Consult with the homeowner to decide where the switches will be located in the house and which devices will be controlled by the switches.

**NOTE:** If you want to control a light with a 4 button controller, you must also install an addressable switch for the light.

- 2 Determine the house and switch code for each switch in the layout:

#### Defining the house code.

If possible, all house codes in an installation should be set to the same letter. However, if you are installing more than 16 devices (switches or optional outlets), additional house codes may be required. If more than one house code is required, be sure to record the house code for each device. You will need this information when you configure the software.

Note that each 4 button controller switch counts as 4 devices.

Valid house codes are "A" through "P". The default house code setting is "A". It is recommended that you change the house code to a different setting.

#### Defining the switch codes.

Each switch code must be unique. Valid switch codes are "1" through "16".

If you install more than 16 devices (switches or optional outlets) with the same house code, you must change the house code. It is recommended that you restart the switch numbering at "1".

Note that each 4 button controller switch counts as 4 devices. You need only to specify the house and switch code one time for the switch. For example, if you set the house code to "G" and the switch code to "5", the address of:

- the first button will be "G5"
- the second button will be "G6"
- the third button will be "G7"
- the fourth button will be "G8".

- 3 Determine which routines will control each device (may be done after the homeowner moves into the house if they are not yet sure which routines they will need).
- 4 Record all switch and device information. Make a copy for the customer.

# Installation

## Setting switch addresses:

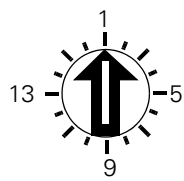
- 1 Determine the addressing scheme for the installation. Record the address, location, and description for each device. You will use this information when you configure devices and routines.
- 2 Set the address on the dimmer switches:

- a Use the small screwdriver provided to press on the tabs while you pull up on the front panel.

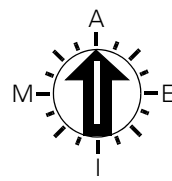


- b Remove the front panel from the switch.

- c Locate the switch and house code setting dials:



Switch Code



House Code

- d Insert the tip of the small screwdriver and turn the dial until the arrow head points to the number or letter you want to use. In some cases, the arrow head may be very small.
- e Align the safety switch (on the lower left corner) and the tab holes on the switch with the tabs and the hole in the front panel.
- f Press the front panel onto the switch so that all 4 tabs click into place.

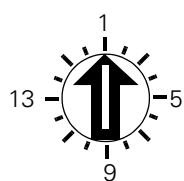
- 3 Set the address on the 4 button controller switches:

- a Insert the tip of the small screwdriver provided between the bottom of the front panel and the switch. Press the handle down until the front panel lifts off.

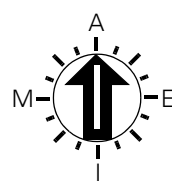


- b Remove the front panel from the switch.

- c Locate the switch and house code setting dials:



Switch Code



House Code

- d** Insert the tip of the small screwdriver and turn the dial until the arrow head points to the number or letter you want to use. In some cases, the arrow head may be very small.
  - e** Slide the tab on the top of the switch under the tab front panel.
  - f** Align the pins and the block on the bottom of the switch and press the front panel onto the switch.
- 4** Label each 4 button controller switch with the name of the device or routine it controls.
  - 5** Arrange for the switches to be installed.

**NOTE:** Home Director switches are intended for installation only by a Licensed Electrician. The Licensed Electrician should follow any separate instructions that may be included with the switch and acceptable wiring practices to install it.

#### **Installing the infrared remote interface**

Install the Infrared Remote Interface in the room where the television will be located:

- 1** Plug the RG6 cable into the back of the interface.
- 2** Use the screws provided to install the interface in the wall and install the wall plate.

#### **Installing the thermostat wall display switches**

To install the thermostat wall display switches:

- 1** Identify the thermostat wall display switch locations.
- 2** Attach the wires from the wall to the terminal block on the wall mount for the display:
  - connect the brown wire to the “-” (GND) connector.
  - connect the red wire to the “+” (+12VDC) connector.
  - connect the white wire to the “C” (CLOCK) connector.
  - connect the green wire to the “D” (DATA) connector.
- 3** Use the screws provided to install the wall mount on the wall.
- 4** Align the top of the display with the top of the wall mount. Press the bottom of the display onto the wall mount until it clicks into place.





# Installation

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## Installing the Home Network Connection Center top trim and side panels

Before you can install the Home Network Connection Center components, you must install the top trim and side panels.

### Parts list

Make sure you have the following items included with the Home Network Connection Center before you begin:

Part Number	Description
<input type="checkbox"/>	Top trim
<input type="checkbox"/>	Side wing (2)
<input type="checkbox"/>	#8 x 3/8 screws (2) included in the accessory bag

- 1 Locate the cabinet, top trim, two #8 x 3/8 screws, and two side panels.
- 2 Install the top trim:
  - a Place the trim so the screw tabs match the holes in the enclosure.
  - b Insert and tighten the screws.
- 3 Install the right side panel:
  - a Make sure the two black pins on the side panel are pulled up so that the bottom side of the pin is not expanded.
  - b Hold the side panel so the tab on the inside of the panel lines up with the slot in the right side of the cabinet.
  - c Slide the panel toward the back of the cabinet. The pins should align with the holes in the back of the cabinet. Push on the pins until they click into place.



Repeat these steps to install the left side panel.

When the side panels and top trim are properly installed, the cabinet should look like this:



# Installation

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## Installing the Home Network Controller cabinet (finished wall)

If you are mounting the cabinet on the finished interior wall, follow these instructions:

Make sure you have read the information in the section "General Installation Information" on page 3 before you begin this procedure.

### Parts list

Make sure you have the following item included with the Home Network Controller before you begin:

Part Number	Quantity	Description
<input type="checkbox"/> 03K8675	1	Home Network Controller Cabinet: <ul style="list-style-type: none"><li>• housing</li><li>• door</li><li>• key</li><li>• mounting hardware</li><li>• mounting rails</li></ul>

**NOTE:** The Home Network Controller must be installed on the INTERIOR wall where the Licensed Electrician has installed the 15 amp junction box.

- 1 Remove the Home Network Controller cabinet from the packaging.
- 2 Locate the mounting rails and hardware and remove them from their packaging.
- 3 Install the mounting rails:

Before you begin, be sure to note the location of the HVAC and security system (low voltage) cables. Allow sufficient space for the cables to exit the wall and enter the low voltage opening in the cabinet.

**To install the mounting rails on the wall after drywall has been hung:**

- a** Locate three studs within 32" span and mark the centers at:
- 54" from the floor for the top rail and
  - 35" from the floor for the bottom rail.

Make sure the marks are level.

**NOTE:** The height of the rails may vary from these figures depending upon the location of the junction box and interconnecting cables. Always maintain a 19" distance between the bottom edge of the top rail and the bottom edge of the bottom rail.

- b** Drill pilot holes in the studs for 6 screws through each rail. **DO NOT** drill a pilot hole for the center slot of the rails.

- c** Remove the mounting hardware and attach both rails to the studs as shown. Screws should be tightened until the rail is flush with the wall and the head of the screw is flush with the rail.



- 4** Use the key to unlock the front panel of the cabinet. Once unlocked, remove the front panel and set it aside.

Do not remove the key from the lock.

- 5** Align the mounting rails on the wall with the rails on the back of the Home Network Controller cabinet and hang it on the wall.



- 6** Secure the cabinet to the wall:

- a** Slide the cabinet along the rails until it is properly aligned on the wall. Any one of the holes in the second row should align with the slot in the top rail.

- b** Drill a pilot hole if desired.

- c** Insert a screw and tighten it until the head of the screw is against the back of the cabinet. **DO NOT** overtighten the screw. Overtightening will bend the cabinet.



- 7** Thread the HVAC and security system (low voltage) cables through the low voltage opening at the top right corner of the cabinet.

If you intend to run low voltage cables through the bottom of the cabinet, remove the plug on the right side of the cabinet bottom. Locate the extra plastic grommet and install it in the hole.

- 8** From the outside of the cabinet, install the decorative plastic buttons into the 8 lag holes (4 on each side). These buttons cover the holes that would have been used if the cabinet had been installed inside the wall.

- 9** Re-install the front panel and lock it. Do not remove the key from the lock.

---

## Connecting AC power

 **Danger!**

*Before you begin this procedure, make sure the AC power is turned off at the breaker in the Main Circuit panel.*

*Avant de commencer cette procédure, assurez-vous de couper le circuit au moyen du disjoncteur sur le tableau de distribution électrique.*

- 1 Remove the front panel from the Home Network Controller and thread the metal clad AC power pigtail through the opening in the lower left corner of the cabinet.
- 2 Contact the Licensed Electrician to connect AC power. After the electrician connects the power, follow the instructions for “Installing Home Network Controller components” on page 24.

### **AC power to the Home Network Controller cabinet**

Follow acceptable wiring practices to connect the AC power pigtail to the 15 Amp junction box which was installed earlier.

Use a right angle clamp to connect the pigtail to the junction box faceplate.

Contact the IBM Authorized Home System Integrator to complete the installation.

## Installing Home Network Controller components

### Danger!

*Before you continue with the installation, make sure the Home Director and HVAC circuit breakers are turned off.*

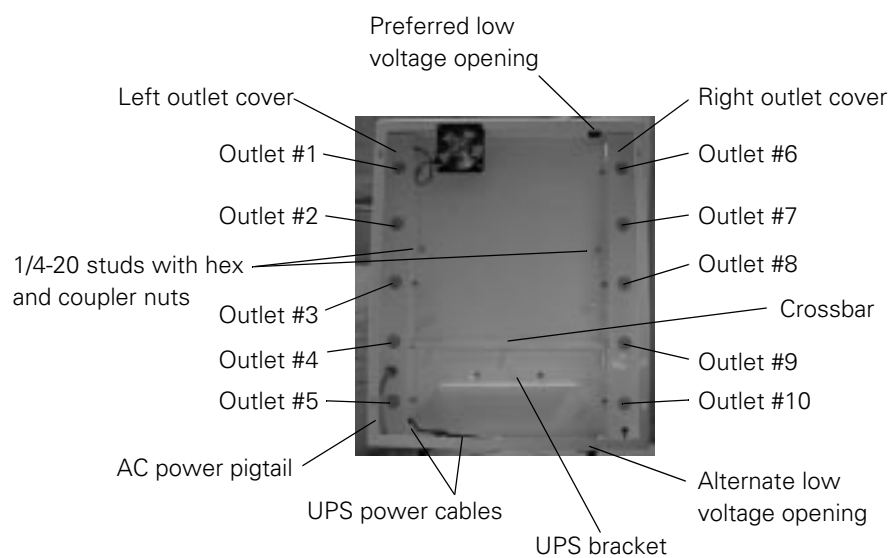
*Avant de poursuivre l'installation, assurez-vous que les disjoncteurs Home Director et C.V.C. sont déclenchés.*

### Before you begin...

- 1 Use the key to unlock the front panel of the appliance. Once unlocked, remove the front panel and set it aside. Do not remove the key from the lock.
- 2 Switch on the main circuit breaker and verify that power is available in the Home Director Appliance cabinet (the fan will operate if power is available).
- 3 Turn off the dedicated Home Director circuit breaker.
- 4 Turn off any circuit breakers that control the HVAC components.

**NOTE:** The Home Network Controller fan is not controlled by a thermostat.

### Home Director Cabinet parts.



### Parts list

Make sure you have the following item included with the Home Network Controller before you begin:

Part Number	Description
<input type="checkbox"/> 10L7410	Home Network Controller dedicated processor
<input type="checkbox"/> 01K1090	Dedicated processor power cable
<input type="checkbox"/> 01K1092	Serial expander cable
<input type="checkbox"/> 02K3373	Uninterruptable Power Supply (UPS) <ul style="list-style-type: none"> <li>• Signal cable (01K1093)</li> <li>• Telephone cable (28L1277)</li> </ul>

# Installation

Part Number	Description
<input type="checkbox"/> 10L7412	Infrared remote sensor (dedicated processor connection)
<input type="checkbox"/> 10L7428	Remote power injector
<input type="checkbox"/> 10L7437	Remote emitter
<input type="checkbox"/> 02K3374	DC power connector
<input type="checkbox"/> 02K1053	Powerline communications interface module
<input type="checkbox"/> 10L7416	HVAC control kit <ul style="list-style-type: none"> <li>• Thermostat control chassis (10L7418)</li> <li>• DC power adapter (02K3372)</li> </ul>
<input type="checkbox"/> 10L7411	Video modulator <ul style="list-style-type: none"> <li>• Audio cable (28L1279)</li> <li>• Video cable (01K1091)</li> <li>• DC power adapter (02K2278)</li> </ul>
<input type="checkbox"/> 02K3370	1A Power supply (from the Home Network Connection Center kit)
<input type="checkbox"/> 10L7430	Infrared interface (in wall)
<input type="checkbox"/>	Cable ties and adhesive back mounts



### Note

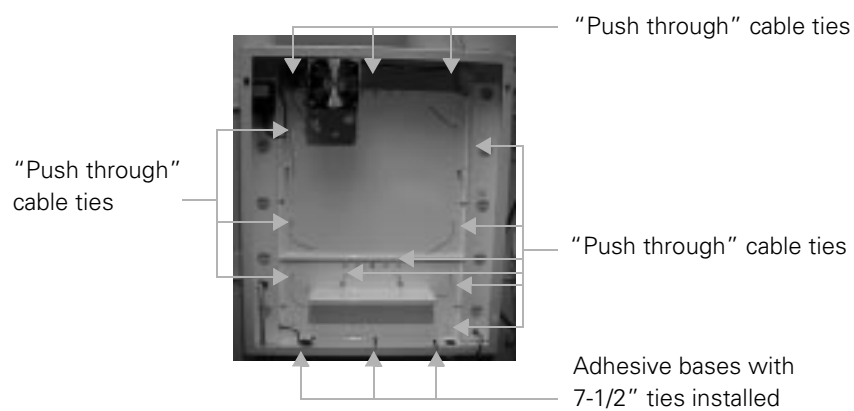
Do not cut cable ties to release cables. Cable ties are designed to be used again but they are not designed to be removed from the cabinet after they have been installed.

### Installing cable ties

Use the cable ties provided to dress all cables as instructed. In some cases, you may not be required to wrap and secure cables. Follow the instructions as written.

#### To secure cable ties:

- 1 Place the cable tie barb into a hole in the back of the cabinet and press the tie until it clicks into place. The following picture shows the locations for cable ties:



**NOTE:** Once a cable tie is installed in a hole, it cannot be removed. Make sure you install ties only in the holes you intend to use.

- 2 Wrap the tie around the cable you want to secure and slide the end of the tie through the locking block.

Make sure the tie is snug against the cable.

**To release cable ties:**

DO NOT cut the cable tie.

- 1 Press up on the tab in the locking block.
- 2 Pull the tie back out of the block.

**Installing bracket edge grommets**

- 1 Locate the 2' section of edge grommet.
- 2 Cut the grommet to fit on the edge of brackets where cabling may potentially chafe:
  - the top and bottom edges of the fan bracket
  - the top and bottom edges of the thermostat controller chassis

**Connecting power and ground cables**

**DC power connector.**

- 1 Locate the 120VAC 1A adapter that came with the Home Network Connection Center.
- 2 Measure and cut the cable at 14" from the power brick.
- 3 Separate and strip both conductors on both cut ends of the cable.
- 4 Attach a ring tongue connector to each conductor.
- 5 Plug the AC adapter into power outlet #1 in the Home Network Controller cabinet.
- 6 Attach the AC adapter cord connectors to the termination block near outlet #1.

The other end of the cable you created in this step will be used when you install components in the Home Network Connection Center. Put the cable in a safe place until you are ready to install the Connection Center components.

**Power cable to the Home Network Connection Center.**

- 1 Locate the end of the 2 conductor 18 AWG stranded wire power cable that runs to the Home Network Connection Center. Thread the cable into the Home Network Controller cabinet, behind the fan, and to the termination block near outlet #1.
- 2 Connect both conductors to the termination block.

The connection to the Home Network Connection Center will be made later.

**Ground cable to the Home Network Connection Center.**

- 1 Locate the end of the 12 AWG, 1 conductor, shielded ground cable that runs to the Home Network Connection Center. Thread the cable into the Home Network Controller cabinet, behind the fan, and to the termination block near outlet #1.
- 2 Connect the conductor to the termination block.

The connection to the Home Network Connection Center will be made later.

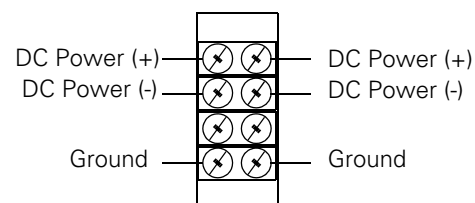


# Installation

When all the cables are correctly connected, the termination block inside the Home Network Controller cabinet should look like this:

To Home Network  
Controller:

To Home Network  
Connection Center:




## Installing the Uninterruptable Power Supply (UPS)

- 1 Use a 5/16 wrench to remove the retaining nuts from the UPS bracket in the controller cabinet.



- 2 Remove the bracket from the cabinet.
- 3 Remove the UPS from the packaging and follow the instructions on the sticker to connect the battery.
- 4 Place the UPS into the bottom of the cabinet so the receptacles point toward the left side of the cabinet (power outlets 1-5).  
Make sure the UPS rests against the back wall of the cabinet.
- 5 Reinstall the UPS bracket and tighten the retaining nuts.  
Make sure the UPS bracket is flush against the top of the UPS.
- 6 Plug the UPS power cable (labeled "input" on the UPS) into power outlet #5 inside the Home Director cabinet.  
Route the extra cable in front of the UPS behind the lower-front cabinet lip. Place the cable into the cable clamps provided.
- 7 Plug the power cable that comes out of the left outlet cover (near power outlet #5) into the bottom "Battery Backup" outlet of the UPS.
- 8 Plug the power cable that comes out of the right outlet cover (near power outlet #10) into the "Accessory Surge Protection" outlet on the back of the UPS.  
Route the extra cable in front of the UPS behind the lower-front cabinet lip. Place the cable into the cable clamps provided.
- 9 Connect the telephone line cable:

**a** Locate the end of the RJ11 standard telephone cable that runs to the Home Network Connection Center. Thread it into the Home Network Controller, along the right outlet cover and to the UPS.

**b** Plug the cable into the top telephone connector  on the UPS.

Do not place the telephone line cable into the cable ties at this time.

**10** Plug the male end of the grey UPS serial cable (if a black cable is included, discard it) into the "Computer Interface Port" on the back of the UPS and tighten the thumbscrews.

When the UPS is properly installed, it should look like this:



### Installing the Home Network Controller dedicated processor

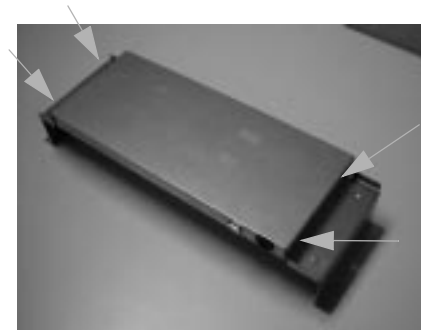
#### Attaching the processor to the Home Director cabinet.

**1** Remove the thermostat controller chassis from its packaging.

**2** Use the following instructions to attach the Remote Power Injector (RPI):



**a** Locate and loosen (do not remove) the four screws that hold the cover onto the thermostat controller chassis.



**b** Remove the cover.

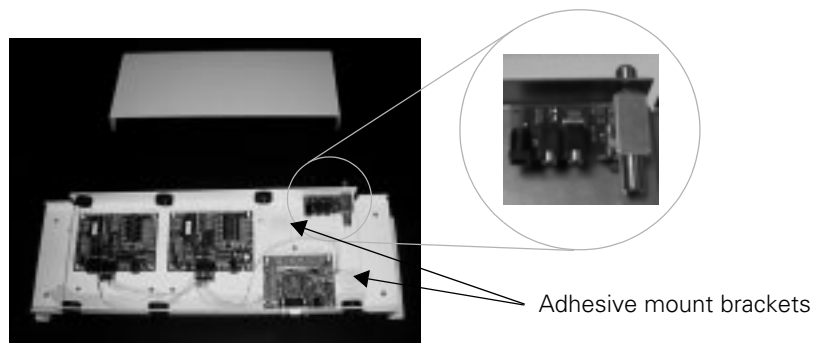
**c** Remove the RPI from its packaging (part number - 10L7429).

**d** Remove the faceplate (if installed), inside washer, and nut from the RPI.

## Installation

- e Place the RPI into the thermostat controller chassis so that the power connectors and LED are facing the bottom of the chassis.
- f Place the washer and nut over the RG-6 connector that protrudes from the chassis. Use a 7/16" box end wrench to tighten the nut until the RPI does not rotate. Make sure the RPI rests on the chassis standoff.
- g Place one adhesive mount cable tie bracket on the chassis to the left of the RPI and one adhesive mount cable tie bracket next to the serial converter.

When the infrared RPI is properly installed, the chassis should look like this:



Do not reinstall the cover on the thermostat controller chassis at this time. It will be installed after all internal chassis component connections have been made.

- 3 Use a 5/16" wrench to remove the hex nuts and coupling nuts from the two 1/4-20 studs inside the cabinet.
- 4 Remove the Home Director dedicated processor from its packaging.
- 5 Install the dedicated processor:

**Note:** Use caution in this procedure. You will need to hold the processor in the Home Director cabinet while you install the thermostat controller chassis and coupling nuts. You can complete the procedure with one person. However, if possible, it may be beneficial to have an additional person to assist with this step.

- a Place the bottom back edge of the dedicated processor (where the connectors are located) onto the crossbar in the Home Director cabinet.

Make sure the dedicated processor is centered between the 1/4-20 studs in the cabinet.

**DO NOT** remove your hand from the processor while it is on the crossbar.

- b Hold the thermostat controller chassis so the serial connector is on the bottom right of the chassis and the coaxial cable connection is on the top right of the chassis.

- c Place the chassis over the dedicated processor, onto the 1/4-20 studs, and secure it with the coupling nuts.

- d Use a 5/16" wrench to tighten the coupling nuts.

**Note:** The thermostat controller chassis is not designed to rest flush against the bottom surface of the cabinet. **DO NOT** overtighten the coupling nuts.

- e Install the hex nuts over the coupling nuts. Use a wrench and nut driver to tighten the hex nuts against the coupling nuts.

### Caution!

*When you install the dedicated processor on the crossbar, do not remove your hand until you have installed the thermostat controller chassis. If you do, it may fall and personal injury or damage may occur.*

*Lorsque vous installez le processeur spécialisé sur la tige transversale, ne retirez votre main qu'après avoir installé le châssis du contrôleur de thermostat. Autrement, il pourrait tomber et causer des blessures ou des dommages.*

When the dedicated processor and thermostat controller chassis are properly installed, they should look like this:

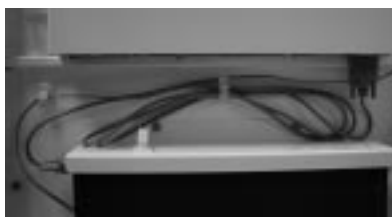


#### Connecting cables to the dedicated processor.

The instructions for connecting cables to the processor have been divided into two sections. This division optimizes the installation process. When you complete these instructions, you will install other components in the Home Director cabinet. After those components are installed, there will be set of instructions for connecting the remaining cables to the processor.

To connect cables to the dedicated processor:

- 1 Connect the UPS serial cable to the processor:
  - a Plug the UPS serial cable into the serial connector on the right side of the dedicated processor and tighten the thumbscrews.
  - b Wrap the excess cable and place it into the cable tie provided.



- 2 Connect the telephone cable between the dedicated processor and the UPS:
  - a Plug one end of the telephone cable that came with the UPS into the modem connector.  
  
There are two connectors on the card. Use the first modem connector from the edge. There are no other connectors between the connector you should use and the edge of the card.
  - b Plug the other end of the telephone cable into the bottom telephone connector on the UPS.
  - c Wrap the excess cable and place it into a cable tie provided.
- 3 Connect the power cable between the dedicated processor and the UPS:
  - a Plug the female end of the power cable into the dedicated processor.
  - b Route the male end of the power cable behind the UPS serial cable and plug it into the top "Battery Backup" outlet of the UPS.



## Installation

- c** Wrap the excess cable and place it into a large cable tie on the left side of the dedicated processor.



- 4** Connect the Ethernet cable to the dedicated processor:

- a** Locate the end of the 568A standard Cat5 RJ45 Ethernet cable that is connected to the Home Network Connection Center. Thread the cable into the Home Network Controller cabinet, over the top of the fan bracket, along the left outlet cover, and to the dedicated processor.
- b** Connect the cable to the Ethernet connector on the modem/network combination card in the processor. The Ethernet connector is the third connector from the edge of the card.

The other end of the cable will be connected later.

- 5** Connect the remote sensor to the dedicated processor:

- a** Locate one adhesive back mount.
- b** Thread one 7-1/2" cable tie with rib side up through the adhesive back mount.
- c** Thread another 7-1/2" cable tie with rib side up through the holes at a 90° angle from the holes you used in the first step.
- d** Set the remote sensor on top of the ties and mount.
- e** Wrap the cable ties around the remote sensor and secure them. If necessary, use an additional cable tie.
- f** Cut off excess materials.

When the cables are correctly installed, the remote sensor should look like this:

- g** Hold the remote sensor so the face points toward the right side of the Home Network Controller cabinet.
- h** Peel the protective backing from the mount and attach the sensor within 2-1/4" of the right edge of the UPS bracket.



- 6** Connect the serial expander cable to the dedicated processor:

- a** Locate the cable and make sure the connectors are not tangled.

**b** If the serial expander cable that came with the system has 8 (25 pin) connectors and the DB25 to DB9 adapters are not already installed, attach them at this time. If the cable has 4 (9 pin) connectors, do not attach the adapters.

**c** Plug the 80 pin connector into the adapter card in the processor. Use caution to avoid bending the pins.

The plug is designed to be connected only one way. If it does not connect easily, turn the plug over and try to connect it again. Both sides of the plug will click when they are properly connected.



Do not wrap or secure the cables in the cable ties at this time.

### Installing the power-line communications module

**1** Remove the power-line communications module from its package. Do not remove the cable tie from the module.

The module may be packaged inside the Home Director Starter Kit (if included) or it may be packaged separately.

**2** Plug the module into power outlet #3 inside the Home Director cabinet.

**NOTE:** Use only power outlet #3. If you do not, the module may not operate properly.

**3** Thread the module serial cable behind the power cable from the dedicated processor.

**4** Plug the cable into the serial expander cable marked "1" or "Port 1" and tighten the thumbscrews.

**NOTE:** It is important to connect the module serial cable to the correct port on the serial expander cable. If you do not, the software will not operate properly.

**5** Thread the cable into the opening between the thermostat controller chassis and the dedicated processor. Wrap the excess serial expander cable from the Port 1 connector and place it into the cable tie provided to the upper left of the dedicated processor.



**6** If the Home Director Starter Kit was included, discard the remaining items in the kit.



#### Note

*Connect the correct serial expander cable to the power-line communications module. If you do not, the software will not operate properly.*

# Installation

## Connecting the thermostat controller chassis components

### Connecting the thermostat controller chassis to the dedicated processor.

- 1 Plug the serial expander cable marked "3" or "Port 3" into the serial port on the thermostat controller chassis.
- 2 Use a small flat head screwdriver to tighten the screws between the RS-232/RS-485 converter and the serial expander cable.



Do not wrap or secure the cable in the cable ties at this time.

### Connecting the Remote Power Injector (RPI).

- 1 Connect the RG-6 cables to the RPI:



- a Locate the end of the RG-6 standard coaxial cable that runs to the Home Network Connection Center and thread it into the Home Network Controller cabinet.
- b Plug it into the RG-6 connector on the top of the thermostat controller chassis and use a 7/16" wrench to tighten the nut.
- c The connection to the Home Network Connection Center will be made later.
- d Locate the 16-1/2" RG-6 cable you created. Thread one end through the grommet on the bottom of the thermostat controller chassis and plug it into the RG-6 connector on the RPI.

**DO NOT** overtighten the connector. Use a 7/16 wrench to tighten the nut. The other end of the cable will be connected later.

- 2 Connect the infrared remote emitter:

- a Thread the mini plug end of the cable through the grommet on the bottom of the thermostat controller chassis and plug it into one of the connectors on the RPI.
- b Thread the emitter end of the cable behind the serial expander cable.
- c Peel the protective backing from the tape on the emitter as shown here:



- d Clean the face of the remote sensor with a dry cloth.

If you do not adequately clean the sensor, the tape may not stick properly and service calls will result.

e Align the Light Emitting Diode (LED) on the emitter with the center of the remote sensor face. Attach the emitter to the sensor as shown here:



f Pull the excess cable into the thermostat controller chassis, wrap, and secure it with a nylon cable tie through the adhesive mount base below the RPI.

3 Connect the power connector:

a Locate the 12V 150mA power supply and plug it into power outlet #8 inside the Home Director cabinet.

b Thread the other end of the power cable through the grommet on the top right of the thermostat controller chassis and plug it into the DC power connector.

c Pull the excess cable into the thermostat controller chassis, wrap, and secure it with a nylon cable tie through the adhesive mount base to the left of the RPI.

When the RPI is properly connected, it should look like this:



## Connecting the thermostat control modules

### Connecting the thermostat controllers to the wall displays.

1 Locate one of the wires connected to a thermostat wall display.

2 Thread the wire through the grommet (on the top of the thermostat controller chassis) that is closest to the left side of the thermostat controller.

3 Connect the wire to the connection block:

- connect the brown wire to the "G" (GND) connector.
- connect the red wire to the "+V" (+12VDC) connector.
- connect the white wire to the "C" (CLOCK) connector.
- connect the green wire to the "D" (DATA) connector.



## Installation

- 4 Pull all excess wire out of the thermostat controller chassis (do not strain the cable connections).




- 5 Repeat the procedure for the second thermostat wall display wire.

### Connecting the thermostat controllers to the HVAC system.

Refer to the documentation that came with the thermostat controllers for additional connection information.

- 1 Locate one of the wires connected to the HVAC system.
- 2 Thread the wire through the grommet (on the top of the thermostat controller chassis) that is closest to the right side of the thermostat controller.
- 3 Connect the wire to the connection block:

Type of system	Connections required
<b>Standard Gas or Electric HVAC</b>	<ul style="list-style-type: none"><li>• Connect the red conductor to the "RC 24VAC" connector</li><li>• Connect the white conductor to the "W HEAT" connector</li><li>• Connect the green conductor to the "G FAN" connector</li><li>• Connect the yellow conductor to the "Y COMP" connector</li></ul>
<b>Heat pump</b>	<ul style="list-style-type: none"><li>• Connect the red conductor to the "RC 24VAC" connector</li><li>• Connect the white conductor to the "W HEAT" connector</li><li>• Connect the green conductor to the "G FAN" connector</li><li>• Connect the yellow conductor to the "Y COMP" connector</li><li>• Connect the orange conductor to the "O CO" connector</li></ul>

 *These connections assume typical thermostat wiring color codes.*

- 4 Pull all excess wire out of the thermostat controller chassis (do not strain the cable connections).



- 5 Repeat the procedure for the second thermostat controller wire to the HVAC system.

### Connecting DC power.

- 1 Locate one 12V DC 500mA power adapter.
- 2 Plug the adapter into power outlet #7 inside the Home Director cabinet.

- 3 Plug the mini connector into the power connector on the thermostat controller chassis.



**Note**

*Make sure no cables are pinched between the thermostat controller chassis and the cover when you reinstall it.*

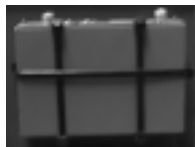
### Reinstalling the thermostat controller chassis cover

- 1 Locate the thermostat controller chassis cover and place it on the chassis.  
Make sure no cables are pinched between the cover and the chassis.
- 2 Tighten the four cover screws.

### Installing the video modulator

- 1 Follow these instructions to attach the nylon cable tie assembly to the video modulator:
  - a Locate two adhesive back mounts. If they are connected, separate them.
  - b Thread one 7-1/2" cable tie with rib side up through each of the adhesive back mounts.
  - c Hold both mounts so the cable ties are parallel.
  - d Thread one 7-1/2" cable tie with rib side up between the mounts. Use the holes at a 90° angle from the holes you used in the first step.
  - e Lay the video modulator on top of the ties and mounts.
  - f Wrap the cable ties around the video modulator and secure them. If necessary, use an additional cable tie.
  - g Cut off excess materials.

When the cable ties are correctly installed, the video modulator should look like this:



**DO NOT** attach the modulator inside the cabinet at this time.

- h Locate the remaining 7-1/2" cable ties and adhesive back mounts and place them in the documentation pocket on the inside of the front panel.
- 2 Plug the end of the RG-6 cable from the thermostat controller chassis into the "OUTPUT" connector on the video modulator  
Use an 7/16" wrench to tighten the nut.
  - 3 Connect the DC power adapter:
    - a Locate the 15VDC 300mA power adapter and plug it into power outlet #9 inside the Home Director cabinet.

## Installation

- b** Plug the other end of the cable into the "Power 15VDC 300mA" connector on the video modulator.
- 4** Connect the audio cable between the video modulator and the dedicated processor.
  - a** Locate the cable and plug one end into the "AUDIO IN" connector on the video modulator.
  - b** Plug the other end of the cable into the line out connector on the Home Director processor. The connector is on the right side of the mouse connector.



- 5** Connect the composite video cable between the video modulator and the dedicated processor. The connector is yellow and located next to the video connector on the dedicated processor.
  - a** Locate the cable and plug one end into the "VIDEO" connector on the video modulator.
  - b** Plug the other end of the cable into the composite video connector on the Home Director processor.



- 6** Hold the video modulator so the cables face the top of the Home Director cabinet and the back of the modulator faces the back of the cabinet.
- 7** Peel the protective backing from the mounts and attach the video modulator to the side of the UPS.
- 8** Wrap the excess cables and place them into the cable ties provided.

When the video modulator is correctly installed, it should look like this:



### Connecting the Home Director dedicated processor to the security system

- 1** Locate the serial cable with the PCI-MINI connector supplied with and connected to the security system.
- 2** Route the cable and the serial expander cable marked "2" or "Port 2" behind the power cables on the right side of the cabinet and through the opening between the dedicated processor and the thermostat controller chassis.

- 3 Plug the PCI-MINI connector into the serial expander cable marked " 2" or "Port 2" and use a small screwdriver (if required) or your fingers to tighten the screws.
- 4 Wrap the excess serial expander cable from the Port 2 connector and place it into the cable tie provided.



#### **Extra serial expander cable connections**

If the cable you are using has extra connectors, wrap and place them into the cable tie provided.



#### **Installing the infrared interface in the wall where the television will be located**

- 1 Locate the infrared interface and remove it from its packaging.
- 2 Connect the RG-6 cable from one side of the double-gang wall outlet to the back of the interface.
- 3 Install the interface in the outlet.
- 4 Install a terminator on the "To TV" connector.
- 5 Install the outlet cover.

IBM recommends that you wait to install the TV target until after the homeowner has installed their television.

The Home Network Controller front panel will be installed later.

---

## Installing Home Network Connection Center components

### Parts List

Make sure you have the following items included with the Home Network Connection Center before you begin:

Part Number	Description
<input type="checkbox"/> 03K8679	Home Network Connection Center finishing kit: <ul style="list-style-type: none"><li>• Module, Residential Telcom (10L7420)</li><li>• Module, Video amplifier (10L7413) installed at the factory in the bottom panel</li><li>• Module, Computer Networking (10L7414)</li><li>• Module, Camera (10L7419)</li><li>• Module, Power Distribution (02K3369)</li><li>• 24" DC power patch cords</li><li>• Front panel (Cover)</li><li>• Front panel (Cover) lock</li></ul>
<input type="checkbox"/>	Power cable with mini and ring tongue connectors (from "Connecting power and ground cables" on page 26)

### Connecting power and ground cables

#### DC Power cable.

- 1 Locate the power cable with the ring tongue and mini connectors you created when you cut the DC power adapter cable.
- 2 Attach the ring tongue connectors to the termination block.

The mini connector on the other end of the cable will be attached to the Power Distribution Module later.

#### Power cable from the Home Network Controller.

- 1 Thread the power cable you created (during the "Connecting power and ground cables" step) into the Home Network Connection Center and to the termination block on the lower right side of the cabinet.

If the cable enters the cabinet from the top, thread it behind the right side panel.

- 2 Attach the power cable ring tongue connectors to the termination block.

#### Ground cable from the Home Network Controller.

- 1 Thread the ground cable into the Home Network Connection Center and to the termination block on the lower right side of the cabinet.

If the cable enters the cabinet from the top, thread it behind the right side panel.

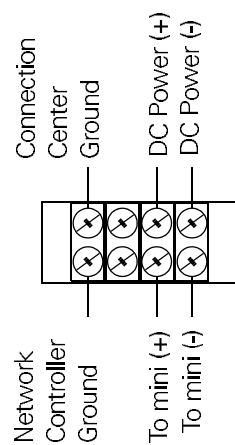
- 2 Attach the ground cable ring tongue connector to the termination block.

**Caution!**

Use a voltage meter to test all connections. Failure to test connections may result in damage to hardware.

Utilisez un voltmètre pour vérifier chacune des connexions au boîtier de terminaisons. L'omission de ces tests peut entraîner des dommages au matériel.

When all the cables are properly connected, the termination block should look like this:

**Testing the power and ground connections before installing modules**

Failure to properly connect and test wiring between the Home Network Controller and the Home Network Connection Center will result in damage.

To test the DC power output of the mini connector:

- 1 Turn on the Home Director circuit breaker.
- 2 Use a voltage meter to verify that the center of the DC mini connector is positive.



- 3 Turn off the circuit breaker.

**Installing the Computer Networking Module**

**NOTE:** The module is an Electrostatic Sensitive Device (ESD). Read and follow the instructions in "Electrostatic Sensitive Devices" on page vi before you continue.

- 1 Locate the Computer Networking Module and remove it from the package.
- 2 Make sure the two black pins on the side panel are pulled up so that the bottom side of the pin is not expanded.
- 3 Hold the module so the words "COMPUTER NETWORKING MODULE..." are right side up.
- 4 The module occupies the first (top) opening of the left side panel. Align the pins with the holes in the panel and insert the module.
- 5 Push the pins in until they click into place.

# Installation

## Installing the Residential Telcom Module

**NOTE:** The module is an Electrostatic Sensitive Device (ESD). Read and follow the instructions in “Electrostatic Sensitive Devices” on page vi before you continue.

- 1 Locate the Residential Telcom Module and remove it from the package.
- 2 Make sure the four black pins on the side panel are pulled up so that the bottom side of the pin is not expanded.
- 3 Hold the module so the word “ACTIVE” is right side up.
- 4 Thread the green ground wire through the opening in the left side panel.
- 5 The module occupies the second and third opening of the left side panel. Align the pins with the holes in the panel and insert the module.
- 6 Push the pins in until they click into place.
- 7 Attach the ground wire to the ground stud at the bottom of the Home Network Connection Center:
  - a Remove the nut.
  - b Place the ring tongue connector over the ground stud.
  - c Replace the nut and tighten it until it is finger tight.

## Installing the Camera Module

**NOTE:** The module is an Electrostatic Sensitive Device (ESD). Read and follow the instructions in “Electrostatic Sensitive Devices” on page vi before you continue.

- 1 Locate the Camera Module and remove it from the package.
- 2 Make sure the two black pins on the side panel are pulled up so that the bottom side of the pin is not expanded.
- 3 Hold the module so the words “CAMERA MODULE” are right side up.
- 4 The module occupies the first (top) opening of the right side panel. Align the pins with the holes in the panel and insert the module.
- 5 Push the pins in until they click into place.

## Installing the Power Distribution Module

**NOTE:** The module is an Electrostatic Sensitive Device (ESD). Read and follow the instructions in “Electrostatic Sensitive Devices” on page vi before you continue.

- 1 Locate the Power Distribution Module and remove it from the package.
- 2 Make sure the two black pins on the side panel are pulled up so that the bottom side of the pin is not expanded.
- 3 Hold the module so the words “POWER DISTRIBUTION MODULE” are right side up.
- 4 Connect the DC power mini connector:
  - a Thread the DC power mini connector from the termination block into the opening for the Power Distribution Module.

**b** Plug the connector into the “IN” connector on the back of the Power Distribution Module.

**5** The module occupies the second opening of the right side panel. Align the pins with the holes in the panel and insert the module.

**6** Push the pins in until they click into place.

### **Installing blank panels**

**1** Locate the three blank panels and remove them from the package.

**2** Make sure the two black pins on the side panel are pulled up so that the bottom side of the pin is not expanded.

**3** Align the blank panel with the opening in the cabinet side panel.

**4** Align the pins with the holes and push on the pins until they click into place.

Repeat these steps for each blank panel you install.

### **Installing the video distribution module**

**1** Locate the video distribution module (installed at the factory in the bottom panel).

**2** If the DC blockers are not already installed, screw one blocker onto each of the “INTERNAL” connectors.

**Note:** You do not have to install blockers on the two top left connectors. These connectors will be used for the infrared RG-6 cables. The IR cables do not require blockers.

**3** Make sure the two black pins on the bottom panel are pulled up so that the bottom side of the pin is not expanded.

**4** Attach the ground wire to the ground stud at the bottom of the Home Network Connection Center:

**a** Remove the nut.

**b** Place the ring tongue connector over the ground stud.

**c** Replace the nut and tighten it until it is tight against the bottom of the cabinet.

**5** Insert the module so the pins align with the holes in the back of the cabinet.

**6** Push the pins in until they click into place.



# Installation

When the modules are properly installed, the cabinet should look like this:



## Connecting the internal power cables

- 1 Connect the Power Distribution Module to the Camera Module.
  - a Locate one internal power cable and plug it into connector "A" of the Power Distribution Module.
  - b Plug the other end of the cable into the "POWER 15 VDC..." connector of the Camera Module.
- 2 Connect the Power Distribution Module to the Computer Networking Module:
  - a Locate one internal power cable and plug it into connector "B" of the Power Distribution Module.
  - b Plug the other end of the cable into the "POWER 15 VDC..." connector of the Computer Networking Module.
- 3 Connect the Power Distribution Module to the video distribution module.
  - a Locate one internal power cable and plug it into connector "C" of the Power Distribution Module.
  - b Plug the other end of the cable into the "POWER 15 VDC..." connector of the video distribution module.
- 4 Wrap the excess cable with the ties provided.
- 5 Press the cable ties into the holes on the back of the cabinet.



### Note

*Do not cut cable ties to release cables. Cable ties are designed to be used again but they are not designed to be removed from the cabinet after they have been installed.*



## **Connecting the Ethernet cables**

### **From the Home Network Controller.**

- 1 Locate the Ethernet connection cable that feeds from the Home Network Controller.
- 2 Plug the cable into port "1" on the Computer Networking Module. Make sure the connector clicks into place.

### **From the wall plates (if included with this installation).**

- 1 Locate an Ethernet connection cable that may be feeding from a wall plate (may be sold separately).
- 2 Plug the cable into the first available connector on the Computer Networking Module. Make sure the connector clicks into place.
- 3 Repeat these steps for any additional wall plate connections.

## **Connecting the telephone cables**

### **From the telephone company line.**

- 1 Plug cable from the telephone company Network Interface Device (NID) into the "LINE 1-4 IN" connection on the Residential Telcom Module. Make sure the connector clicks into place.
- 2 Plug telephone cables from telephone jacks into the appropriate line # bank on the Residential Telcom Module.

### **From the Home Network Controller.**

- 1 Locate the telephone cable from UPS inside the Home Network Controller.
- 2 Plug the cable into the "1 (BI) A" connection on the Residential Telcom Module. Make sure the connector clicks into place.

### **From the security system.**

- 1 Locate the telephone cable from the security system into the Home Network Connection Center.
- 2 Plug the connector into the blue telephone cable already attached to the "RJ-31X" connector on the Residential Telcom Module.
- 3 Thread any excess cable into the security system cabinet.

## **Connecting the video cables**

### **Video modulator cable.**

- 1 Locate the RG-6 cable from the video modulator inside the Home Network Controller.
- 2 Remove the DC block (if installed) from one "INTERNAL" connector.
- 3 Plug the cable into the connector and tighten the nut.

### **Infrared remote wall interface cable.**

- 1 Locate the RG-6 cable from the infrared remote wall interface inside the Home Network Controller.
- 2 Remove the DC block (if installed) from one "INTERNAL" connector.

# Installation

- 3 Plug the cable into the connector and tighten the nut.

If additional wall targets (sold separately) are installed in the home, repeat these steps for each installed target.

#### **Television cables.**

- 1 Locate the television cables feeding from the wall plate.
- 2 Plug each cable into an "EXTERNAL" connector.

#### **Basic cable installation**

When the basic video, telephone, and Ethernet cables are properly installed, they should look like this:



#### **Connecting additional cables**

Use these instructions to connect additional cables. The cables may not have been provided with the IBM Home Director hardware.

#### **Cable television and DBS cables.**

- 1 If you are installing cable or DBS, locate the RG-6 cable from the cable television supply line (from curb) and/or the RG-6 cable from the satellite dish into the Home Network Connection Center.
- 2 Plug the cable into the appropriate "CATV/ANT", "DBS1 IN", and/or "DBS2 IN" connector and tighten the nut.
- 3 Connect the RG-6 cable from the satellite receiver location to the appropriate "DBS1 OUT" or "DBS2 OUT" connector.

#### **Camera Module cables.**

- 1 If you are installing closed circuit cameras (may be sold separately), locate the RG-6 cable from a camera.
- 2 Plug the cable into the first available connector on the Camera Module and tighten the nut.
- 3 Plug one end of a short RG-6 cable into the "OUTPUT" connector on the Camera Module and tighten the nut.
- 4 Plug the other end of the RG-6 cable into the "CAMERA" connector on the video distribution module and tighten the nut.

Repeat these steps for additional cameras you wish to install.

When the additional television and Camera Module cables are installed, the video distribution module connections should look like this:



### **Installing the Home Network Connection Center front panel**

- 1** Locate the front panel, lock, nut, lock washer, and small nut.
- 2** Remove the protective covering from the front and back.
- 3** Hold the lock so the key notch is at the bottom of the panel and slide one end of the lock through the front panel.
- 4** Screw the nut onto the back side of the lock until it is tight against the front panel.
- 5** Hold the CAM latch so the longest side is at the bottom of the front panel and slide it over the back side of the lock.
- 6** Slide the lock washer over the back of the lock.
- 7** Screw the small nut onto the back of the lock until it is tight against the lock washer and the CAM latch.
- 8** Slide the panel along the grooves on the sides of the cabinet and under the top trim.
- 9** Turn the lock counter-clockwise until it locks into the hole in the video distribution module.

Do not remove the key from the lock.

---

## Configuring Home Director hardware and software to work together

### Parts List

Make sure you have the following items included with Home Director before you begin:

Part Number	Description
<input type="checkbox"/> 10L7427	Wireless remote target
<input type="checkbox"/> 10L7415	Home Director wireless remote

### Verify connections in the Home Network Connection Center

Before you turn on the Home Director circuit breaker, make sure you have checked the following connections:

- DC blocks are installed on all connectors that are not used for IR devices on the "INTERNAL" side of the video distribution module.
- Terminators are installed on top of all unused DC block connectors on the "INTERNAL" side of the video distribution module.
- Terminators are installed directly (no DC block) on all unused connectors on the "EXTERNAL" side of the video distribution module.
- All television connections are made to the "EXTERNAL" side of the video distribution module only. **NOTE:** Failure to properly connect televisions may result in damage to equipment.

### Install the wireless remote target in the room where the TV is located

- 1 Locate the remote target and remove it from its packaging.
- 2 Plug the mini connector into the "Target" outlet in the front of the in-wall IR interface.
- 3 Place the target in a "line of sight" location.

**NOTE:** It is important that a clear path is provided between the wireless remote and the remote receiver.

### Turn on the circuit breakers

You should turn on the Home Director and HVAC circuit breakers after all the cable connections have been made. Power must be turned on to the Home Network Controller, Home Network Connection Center, and HVAC system before you continue.

### Program the Home Director channel

**Valid channels:**

- 14-64 (UHF)
- 65-125 (VHF)

- 95-99 (not valid)

You should skip at least one channel number between the modulator channel and broadcast channels. Try to choose a channel that is not likely to be used for any other broadcast signal.

**Setting the channel.**

The program switch on the video modulator allows you to program a 2 or 3 digit channel number. Each digit must be a number between 0 and 9. If you are setting a two digit number, you will not program a third digit number.

To set the channel for the wireless remote:

- 1 Determine the channel for Home Director.
- 2 Straighten a small paper clip.
- 3 Locate the program switch on the front of the video modulator inside the Home Network Controller cabinet.

The switch is inside a small, unlabeled hole to the right of the indicator lights.

- 4 Set the first digit number:

Insert the end of the paper clip and press the switch between 1 and 10 times. If you press the switch 10 times, the number "0" will be recorded.

When you finish programming the first digit, wait until the power indicator light turns on.

- 5 Repeat step 4 to set the second and third (if applicable) digit number.

*Channel setting example:*

If you set the channel to #67:

Digit position	Digit #	
1	6	Press the switch six times. Wait for the power light to turn on.
2	7	Press the switch seven times. Wait for the power light to turn on.
3		Do not press the switch. This digit will not be set.

- 6 Hold the video modulator so the cable connections face the top of the Home Network Controller cabinet.
- 7 Peel the protective backing from the mounts and attach the video modulator to the side of the UPS.

**Wireless remote batteries**

- If batteries are not already installed in the wireless remote, install them now.
- If batteries are installed but the "low battery" indicator light is lit, install new batteries.

# Installation

## **Turn on the Home Director dedicated processor**

- 1 Press the power button on the front of the UPS.
- 2 Switch the power button on the back of the dedicated processor to "I".

## **Installing the Home Network Controller front panel**

- 1 Place all extra hardware and publications (except the wireless remote, *Owner's Manual*, *IBM Statement of Limited Warranty*, and *Product Registration & Survey*) into the documentation pocket inside the front panel.
- 2 Make sure the front panel is unlocked and oriented at the top of the panel.
- 3 Align the pins in the front panel with the keyholes in the cabinet.
- 4 Once the pins enter the keyholes, push down on the front panel. The pins will lock into place.
- 5 Lock the front panel. Do not remove the key from the lock.

---

## Configuring the Home Director Software

Refer to the instructions that come with the software for information about installing and configuring it. When you complete the configuration, follow the remaining steps in this section.

### **Attach the test television to the Home Network Connection Center**

- 1 Locate an unused "EXTERNAL" connector on the video distribution module and remove the termination block if installed.
- 2 Install a DC block (if one is not already installed).
- 3 Connect the RG-6 coaxial cable from your test television to the connector.
- 4 Select the Home Director channel and verify that the Home Director main screen appears.

If the main screen does not appear, see "No picture appears on the Home Director channel" on page 58.

- 5 Disconnect the test television and replace the termination block.



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## Homeowner orientation

After you have successfully installed the hardware and software for the Home Director system, you should complete the Homeowner Orientation phase of the installation. During this orientation, you should:

- 1** Use the online orientation program to help you explain the features of the Home Director system.  
  
From the Windows 95 Start menu, click **Programs, IBM Home Director, and HD Orientation**. The HD orientation program will start automatically.
- 2** Physically walk through the home with the homeowner and show them each hardware component of the system.
- 3** Advise the homeowner to make a backup copy of the key for the Home Network Controller cabinet and the key for the Home Network Connection Center cabinet.
- 4** Locate the *Owner's Manual*, *IBM Statement of Limited Warranty*, and *Product Registration & Survey* card.  
  
Give them to the homeowner and advise them that their initial use of the system indicates that they have read and agree to the IBM Program License Agreement in the *Owner's Manual*.
- 5** Use the Appendix of the Home Director *Owner's Manual* to record the following information for the homeowner:
  - the Date of Installation / Warranty Start Date (this is the date you complete the homeowner orientation)
  - your company name and telephone number for support
- 6** Encourage the homeowner to complete and mail the *Product Registration & Survey* card included with the Home Director documentation. This card provides valuable information for service, support, and market research.





## Chapter 2: Troubleshooting

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# Troubleshooting

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## General troubleshooting information

Look through this chapter to find the problem description or error code that matches the problem the customer is having. When you find the description, follow the steps to resolve the problem. Some problems have multiple steps. You should follow the steps until the problem is solved.

The information contained in this section is intended for several models of the Home Director product. The system you are servicing may not have some of the hardware discussed in this section.


If the system does not have the hardware described, some of the troubleshooting information may not apply. Follow the steps for the hardware and software that came with your system.

In some cases, technical updates and troubleshooting information is available on the World Wide Web at [www.ibm.com/homedirector](http://www.ibm.com/homedirector).

The following chart will help you quickly locate troubleshooting steps for particular system components:

Page	Component
56	"Wireless remote"
58	"Home Director channel"
61	"Uninterruptable Power Supply"
62	"Home Network Connection Center"
65	"Devices"
66	"Routines"
67	"Thermostat wall display"

## Wireless remote



If the problem is...	Here's what to do...
The on-screen highlight does not move	<ol style="list-style-type: none"> <li>1 Make sure you are using the Home Director wireless remote on a television with an infrared target installed.</li> <li>2 Make sure you are pointing the infrared sender toward the infrared target. <b>Note:</b> For information on using the Home Director wireless remote, see "Using the wireless remote" in the Home Director <i>Owner's Manual</i>.</li> <li>3 Make sure nothing is blocking the infrared target.</li> <li>4 Move the trackball slowly. The highlight will not move if you roll the trackball too fast.</li> <li>5 Check the battery indicator light. If the battery power is low, replace the batteries.</li> <li>6 Make sure no fluorescent lights are shining directly on the infrared receiver. If fluorescent lights are shining on the receiver:               <ol style="list-style-type: none"> <li>a. Turn off the fluorescent light (temporarily) to see if it is causing the problem.</li> <li>b. Shield the infrared receiver from any direct fluorescent lights.</li> <li>c. If possible, relocate the fluorescent light.</li> </ol> </li> <li>7 Make sure the remote target is connected to the wall outlet and that the power light is lit.</li> </ol>
	 <p style="margin-left: 100px;">"Target" wall outlet</p> <p style="margin-left: 100px;">Power light</p>
	<ol style="list-style-type: none"> <li>a. If it is not connected, reconnect it to the "Target" connector.</li> <li>b. Make sure the power indicator light is lit on the wall outlet. If the power light is not lit, make sure the connector is completely installed. Reset the outlet by turning the Home Director circuit breaker off and immediately turn it back on. The light should turn on.</li> </ol>



*If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website ([www.ibm.com/homedirector](http://www.ibm.com/homedirector)) or call IBM at 1-800-426-7149.*


**Table 1: Wireless remote problems**

# Troubleshooting

If the problem is...	Here's what to do...
<b>The on-screen highlight does not move (continued)</b>	<p><b>8</b> Test the Home Director system with a spare wireless remote. If the test wireless remote operates properly, replace the homeowner's wireless remote.</p> <p><b>9</b> Make sure the emitter inside the Home Network Controller cabinet is properly aligned with the remote sensor. For additional information, see step e on page 34.</p> <p><b>10</b> Point the wireless remote at the remote sensor on top of the UPS bracket <u>inside</u> the Home Network Controller and test to see if the highlight moves on the screen. You may have to temporarily remove the emitter attached to the face of the sensor.</p>  <p>If the wireless remote does not operate properly, replace the remote sensor. You must follow the instructions in "Replacing the remote sensor (inside the Home Network Controller) - "10L7424"" on page 72 to replace the sensor.</p> <p><b>11</b> Point the wireless remote at the infrared sensor on top of the UPS bracket again and test to see if the highlight moves on the screen.</p> <ol style="list-style-type: none"> <li>If the highlight moves properly, reconnect the emitter to the front of the infrared sensor.</li> <li>If the highlight does not move properly, replace the Home Director dedicated processor. See "Removing and reinstalling the dedicated processor from the Home Network Controller Cabinet" on page 76.</li> </ol> <p><b>12</b> Test the remote at the infrared target installed near the television. If the highlight does not move, one of the following items may have failed. Test each item by removing it and temporarily installing a test part:</p> <ol style="list-style-type: none"> <li>Wireless remote target at television. For more information, see "Replacing the TV remote target - "10L7466"" on page 92.</li> <li>Target interface (wall outlet) at television. For more information, see "Replacing the in-wall interface in a room where the TV remote target is located - "10L7468"" on page 94.</li> <li>Emitter interface (Remote Power Injector) inside the Home Network Controller cabinet. For more information, see "Replacing the Remote Power Injector (RPI) inside the Home Network Controller cabinet - "10L7467"" on page 92.</li> <li>Coaxial cable from the top of the thermostat controller chassis. For more information see "Connecting the Remote Power Injector (RPI)" on page 33.</li> </ol>
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>

**Table 2: Wireless remote problems (continued)**


## Home Director channel

If the problem is...	Here's what to do...
<b>No picture appears on the Home Director channel</b>	<ol style="list-style-type: none"> <li>1 Make sure the television is set to the Home Director channel.</li> <li>2 Make sure the coaxial cable is correctly attached to the television.</li> <li>3 If a VCR is installed: <ul style="list-style-type: none"> <li>• Turn off the VCR and check the Home Director channel again.</li> <li>• Connect the coaxial cable from the wall directly to the television and check the Home Director channel again.</li> </ul> </li> <li>4 Follow steps 1 through 3 on page 71 to restart the Home Director system.</li> <li>5 Check the video modulator: <ol style="list-style-type: none"> <li>a. Plug a test television coaxial cable directly into the modulator inside the Home Director Home Network Controller.</li> <li>b. Run an automatic channel search on the television to see if the Home Director screen appears on any other channel. If there is no Home Director screen on any channel, the video modulator may have failed. Continue with these steps - do not replace the video modulator yet.</li> <li>c. Plug the test television video input into the RCA composite output of the dedicated processor. If you see the Home Director screen, replace the video modulator. See "Replacing the video modulator - "10L7426"" on page 73.</li> </ol> </li> <li>6 If you do not see the Home Director screen, replace the composite video cable.</li> <li>7 If you replace the composite video cable and still do not see the Home Director screen: <ol style="list-style-type: none"> <li>a. With the test television still connected to the composite video output on the Home Director dedicated processor, follow steps 1 through 3 on page 71 to restart the Home Director system.</li> <li>b. If there is no signal, replace the dedicated processor. For more information, see "Removals and Replacements" on page 71.</li> </ol> </li> </ol>
<b>A cable television channel appears on the Home Director channel</b>	<ol style="list-style-type: none"> <li>1 Make sure the television is set to the Home Director channel.</li> <li>2 If a VCR is installed: <ul style="list-style-type: none"> <li>• Turn off the VCR and check the Home Director channel again.</li> <li>• Connect coaxial cable from the wall directly to the television and check the Home Director channel again.</li> </ul> </li> <li>3 Check with your local cable company to find out if a new cable channel has been added. If a new cable channel has been added on the Home Director channel, change the Home Director channel assignment.</li> <li>4 See "Program the Home Director channel" on page 47 for information on changing the Home Director channel on the video modulator.</li> </ol>
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>


**Table 3: Home Director channel problems**



# Troubleshooting

If the problem is...	Here's what to do...
<b>Herringbone pattern appears only on the Home Director channel</b>	<ol style="list-style-type: none"> <li>1 You may have chosen a channel number that is not completely vacant: <ul style="list-style-type: none"> <li>• Distant UHF stations may be unwatchable but may cause interference if you program the Home Director channel on the same frequency.</li> <li>• Cable companies may have extra signals where there should be none. Reprogram the video modulator to a different channel.</li> </ul> </li> <li>2 Add a low pass filter at the cable access box or in the Home Network Connection Center to remove cable company "noise".</li> <li>3 Add a DC block at the cable access box or in the Home Network Connection Center to remove common mode interference.</li> </ol>
<b>Herringbone pattern appears on many channels including the Home Director channel (disappears when you disconnect the CATV/ANT feed)</b>	<ol style="list-style-type: none"> <li>1 Install a variable attenuator at the cable access box and adjust it until the interference disappears. This can eliminate RF amplifier overload from abnormally strong signals.</li> <li>2 Install an FM trap at the cable access box. This can help eliminate a nearby FM signal that is stronger than the rest.</li> <li>3 If the problem is from a nearby television station, contact the station management about suitable filters.</li> </ol>
<b>No color on the Home Director channel</b>	<ol style="list-style-type: none"> <li>1 You may have chosen an incorrect cable standard setting in the setup screen on the television. Use the television setup screen to select another cable standard such as HRC or IRC. Not all televisions can accommodate the 1.25MHz difference between the HRC and IRC cable standard.</li> <li>2 The default cable standard setting for the Home Director product is IRC. <ul style="list-style-type: none"> <li>• You can change the video modulator setting from IRC to HRC by programming the channel to "98".</li> <li>• You can change the video modulator setting from HRC to IRC by programming the channel to "99".</li> </ul>           See "Program the Home Director channel" on page 47 for information about programming the video modulator channel. </li> </ol>
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>


**Table 3: Home Director channel problems**

If the problem is...	Here's what to do...
<b>Blinking video modulator power indicator light</b>	An error has occurred or an incorrect channel has been selected and the video modulator has returned to the default settings. Reset the Home Director channel. See "Program the Home Director channel" on page 47 for information about programming the video modulator channel.
<b>An error code (numbers) or an error message (text) is displayed on the screen</b>	<ol style="list-style-type: none"> <li data-bbox="768 1066 1649 1143">1 Write down the error code number, text, and any symptoms. Ask the customer for details of the problem (if available). If they are not available, note any error codes currently displayed on the system.</li> <li data-bbox="768 1143 1649 1205">2 Check all connections to the Home Director dedicated processor. Replug any loose cables.</li> <li data-bbox="768 1205 1649 1299">3 If the wireless remote target connector inside the Home Network Controller is loose, replug it and follow steps 1 through 3 on page 71 to restart the Home Director system.</li> <li data-bbox="768 1299 1649 1417">4 If you have a dedicated processor as a part of your test equipment, install the new dedicated processor and restart the Home Director system. For more information, see "Removing and reinstalling the dedicated processor from the Home Network Controller Cabinet" on page 76.</li> </ol>
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>

**Table 3: Home Director channel problems**


# Troubleshooting

## Uninterruptable Power Supply

If the problem is...	Here's what to do...
<b>Home Director system will not turn on</b>	<ol style="list-style-type: none"><li>1 Make sure the power cables are properly connected to the UPS.</li><li>2 Make sure the power button on the front of the UPS is turned on.</li><li>3 Make sure the power cables are properly connected.</li><li>4 Make sure the power switch on the dedicated processor is turned on.</li><li>5 Make sure the UPS battery was properly connected (follow the instructions that came with the UPS to connect the battery).</li></ol>
	<i>If any of these problems continue after you take the actions listed, see the <b>Installer Support</b> area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>


**Table 4: UPS problems**

## Home Network Connection Center


If the problem is...	Here's what to do...
<b>A single telephone does not work</b>	<ol style="list-style-type: none"><li>1 Make sure the telephone is plugged into the telephone outlet.</li><li>2 If you have a cordless telephone, disconnect the power cable for a few moments and then reconnect it.</li><li>3 If available, take a working telephone from another area of the house and plug it into the telephone outlet in question and test it.</li><li>4 Open the Home Network Connection Center, locate the telephone cable from the wall plate in question. Make sure the cable is connected properly to the Residential Telcom Module.</li><li>5 Connect a known working telephone directly into the Residential Telcom Module outlet for the wall plate in question.</li><li>6 If the telephone does not work properly, replace the module. See page 81 for more information on replacing modules. If a replacement part is not immediately available, move the telephone cable to a working connector on the module.</li><li>7 Check the wall plate for broken or damaged wires.</li></ol>
<b>No telephones work</b>	<ol style="list-style-type: none"><li>1 Contact your local telephone company.</li><li>2 If the telephone company informs you that there is a dial tone to your house, contact your IBM Home Director installer. Tell the installer that the telephone company has verified a dial tone to your house.</li><li>3 Open the Home Network Connection Center and verify that the telephone service cable is connected properly to the Residential Telcom Module.</li><li>4 Check for dial tone on the telephone service cable at the Home Network Connection Center.<ul style="list-style-type: none"><li>• If there is no dial tone, check the connections at the telephone company network interface point.</li><li>• If there is a dial tone, replace the Residential Telcom Module inside the Home Network Connection Center.</li></ul></li></ol>
	<p><i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i></p>

**Table 5: Home Network Connection Center problems**

# Troubleshooting

If the problem is...	Here's what to do...
<b>DBS channels do not appear on the television</b>	<ol style="list-style-type: none"> <li>1 Make sure there is a broadcast signal on the channel you have selected.</li> <li>2 Connect a television directly to the DBS receiver. <ul style="list-style-type: none"> <li>• If there is still no picture, contact the DBS provider.</li> <li>• If there is a picture, contact the IBM Home Director installer.</li> </ul> </li> <li>3 Check the power LED on the video distribution module inside the Home Network Connection Center. If the LED is not lit, check the power LED on the Power Distribution Module. <ul style="list-style-type: none"> <li>• If the Power Distribution Module LED is lit, replace the DC power cable between the modules.</li> <li>• If the Power Distribution Module LED is not lit, see "Power Distribution Module LED is not lit" on page 64.</li> </ul> </li> <li>4 If the power LEDs are lit, locate the DBS receiver coax cable (if applicable) connected to the "INTERNAL" side of the video distribution module in the Home Network Connection Center. Disconnect the cable from the module, connect a test television to it, and check for DBS output. <ul style="list-style-type: none"> <li>• If there is still no picture, the cable may be defective, damaged, or have a bad connector.</li> </ul> </li> <li>5 If there is a picture, reconnect the cable. Connect the test television to any "EXTERNAL" port in the Home Network Connection Center. If there is no picture, replace the video distribution module. See page 81 for replacement information.</li> </ol>
<b>Cable or UHF/VHF channels do not appear on the television</b>	<ol style="list-style-type: none"> <li>1 Make sure there is a broadcast signal on the channel you have selected.</li> <li>2 If you have a cable box or VCR, make sure the cables are properly connected.</li> <li>3 Check the power LED on the video distribution module inside the Home Network Connection Center. If the LED is not lit, check the power LED on the Power Distribution Module. <ul style="list-style-type: none"> <li>• If the Power Distribution Module LED is lit, replace the DC power cable between the modules.</li> <li>• If the Power Distribution Module LED is not lit, see "Power Distribution Module LED is not lit" on page 64.</li> </ul> </li> <li>4 If the power LEDs are lit, locate the CATV or antenna coax cable (if applicable) connected to the "CATV/ANT" port of the video distribution module in the Home Network Connection Center. Disconnect the cable from the module, connect a test television to it, and check for CATV or UHF/VHF channel output. <ul style="list-style-type: none"> <li>• If there is still no picture, the cable may be defective, damaged, or have a bad connector.</li> </ul> </li> <li>5 If there is a picture, reconnect the cable. Connect the test television to any "EXTERNAL" port in the Home Network Connection Center. If there is no picture, replace the video distribution module. See page 81 for replacement information.</li> </ol>
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>


**Table 5: Home Network Connection Center problems**

If the problem is...	Here's what to do...
<b>Camera option output does not appear on the television</b>	<p>Make sure you have selected the proper channel for the camera.</p> <ol style="list-style-type: none"> <li>1 Make sure the camera is properly installed and power is connected.</li> <li>2 Check to see if the camera video modulator is set to the correct channel.</li> <li>3 Make sure the camera cables are properly connected inside the Home Network Connection Center.</li> <li>4 Check power LED on the Camera Module. If the LED is lit, remove the cable from the module and plug it into a test television. <ul style="list-style-type: none"> <li>• If there is no picture, the cable may be defective, damaged, or have a bad connector.</li> <li>• If there is a picture, reconnect the cable to the module.</li> </ul> </li> <li>5 If the LED on the Camera Module is not lit, check the power LED on the Power Distribution Module. <ul style="list-style-type: none"> <li>• If the LED is lit, replace the DC power cable between the modules.</li> <li>• If the LED is not lit, see "Power Distribution Module LED is not lit" on page 64.</li> </ul> </li> <li>6 Unplug the coax cable from the "CAMERA" connector on the video distribution module and plug it into a test television. If there is no picture, replace the cable.</li> </ol>
<b>Power Distribution Module LED is not lit</b>	<ol style="list-style-type: none"> <li>1 Make sure the Home Director circuit breakers are turned on.</li> <li>2 Remove the Power Distribution Module from the Home Network Connection Center. Use a voltage meter to check the power cable. <ul style="list-style-type: none"> <li>• If the cable has no power, replace it. See "Replacing the DC power mini connector cable inside the Home Network Connection Center - "02K3380"" on page 83.</li> <li>• If the cable has power, replace the Power Distribution Module. See page 81 for more information on replacing the module.</li> </ul> </li> </ol>
	<p><i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i></p>

**Table 5: Home Network Connection Center problems**

# Troubleshooting

## Devices

If the problem is...	Here's what to do...
<b>A device does not turn on or off automatically</b>	<ol style="list-style-type: none"> <li>1 Make sure the power switch on the device (if applicable) is set to the "on" position.</li> <li>2 Make sure the safety switch is not pulled out on the light switch.</li> <li>3 If the device is a light, make sure the bulb is still good. If it is not, replace the bulb.</li> <li>4 Make sure the device is plugged into an outlet (if installed) controlled by Home Director.</li> <li>5 Make sure the device is enabled in the "Devices" section of the Home Director software.</li> <li>6 Make sure the device has not been automatically turned on or off by a routine.</li> <li>7 If the device is controlled by a routine, make sure the routine's start and end dates are correct.</li> <li>8 Plug the device into an outlet that is not controlled by Home Director. If you test it and the device still does not work properly, replace the device.</li> <li>9 Check the outlet to make sure the house and switch codes are set properly. See "Addressing Home Director switches" on page 16 for more information.</li> <li>10 The switch may have failed. Replace the switch. See page 72 for more information about changing switches.</li> </ol>
<b>Two devices turn off when only one is scheduled</b>	<ol style="list-style-type: none"> <li>1 Make sure the second device is not schedule by another routine that is running at the same time.</li> <li>2 Check the outlet to make sure the house and switch codes are set properly. See "Addressing Home Director switches" on page 16 for more information.</li> <li>3 The switch may have failed. Replace the switch. See page 72 for more information about changing switches.</li> </ol>
<b>A device turns on or off unexpectedly</b>	<ol style="list-style-type: none"> <li>1 Make sure the device is still plugged in and that the power switch (if applicable) is still set to the "on" position.</li> <li>2 If the device is a light, make sure the bulb is still good. If it is not, replace the bulb.</li> <li>3 Make sure the device has not been automatically turned on or off by a routine.</li> <li>4 Plug the device into an outlet that is not controlled by Home Director. If you test it and the device still does not work properly, replace the device.</li> <li>5 The switch may have failed. Replace the switch. See page 72 for more information about changing switches.</li> </ol>
<b>A light will not dim</b>	<p>Make sure you are using an "incandescent" type light. The Home Director software is not designed to dim any other type of light.</p> <p>The switch may have failed. Replace the switch. See page 72 for more information about changing switches.</p>
	<p><i>If any of these problems continue after you take the actions listed, see the <b>Installer Support</b> area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i></p>

**Table 6: Problems with devices**

## Routines


If the problem is...	Here's what to do...
<b>A routine is scheduled but does not start on the correct date or time.</b>	<ol style="list-style-type: none"> <li>1 Make sure the current date and time settings are correct for your location.</li> <li>2 Make sure the "Daylight Savings Time" setting is correct for your location.</li> </ol>
<b>The "Dawn" and/or "Dusk" routine(s) do not begin and end on time</b>	Make sure the current date and time settings are correct for your location.
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>

Table 7: Problems with routines

## Ethernet Network


If the problem is...	Here's what to do...
<b>A computer plugged into the Ethernet home network does not connect</b>	<ol style="list-style-type: none"> <li>1 Make sure the computer cables are properly connected.</li> <li>2 Make sure the hardware and software are configured properly and for the 10BaseT standard. If the "Destination host unreachable" message appears, make sure your TCP/IP address is set to 192.168.0.21 and the subnet mask is set to 255.255.255.0</li> <li>3 Move the computer to another Ethernet connection in the house and try to connect again.</li> <li>4 Refer to the documentation that came with the computer to obtain support.</li> <li>5 Check the power LED on the Computer Networking Module inside the Home Network Connection Center. If the LED is not lit, check the power LED on the Power Distribution Module. <ul style="list-style-type: none"> <li>• If the Power Distribution Module LED is lit, replace the DC power cable between the modules. If you replace the cable and the LED still is not lit, replace the module. See page 81 for information on replacing the module.</li> <li>• If the Power Distribution Module LED is not lit, see "Power Distribution Module LED is not lit" on page 64.</li> </ul> </li> <li>6 Locate the cable from the computer connected to the Ethernet distribution module. <ul style="list-style-type: none"> <li>• If the "L" LED is not lit, make sure the Ethernet card installed inside the customer's networked computer is connected properly. Advise the homeowner to contact the manufacturer of the computer hardware for support.</li> <li>• If the "L" LED is lit, and the computer hardware and software are properly configured, the cable may be defective, damaged, or have a bad connector. Contact the installer of the cable.</li> </ul> </li> </ol>
	<i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i>

Table 8: Problems with Ethernet connections



# Troubleshooting


## Thermostat wall display

If the problem is...	Here's what to do...
<b>No heat or air conditioning</b>	<ol style="list-style-type: none"> <li>1 Check the wall display(s) to see if the temperature is displayed.</li> <li>2 If the temperature is displayed, make sure it is set to the temperature you specified. The temperature can be set from the wall display or the Home Director channel.</li> </ol>
<b>Heat or air conditioning system runs constantly</b>	
<b>One thermostat wall display works but the other does not</b>	<ol style="list-style-type: none"> <li>1 If more than one wall display is installed, check both displays. <ul style="list-style-type: none"> <li>• If only one wall display works, replace the display (see "Replacing the wall thermostat display - "10L7434"" on page 85).</li> <li>• If neither display works, contact the HVAC installer.</li> </ul> </li> <li>2 If nothing is shown on the new display, visually inspect the thermostat control modules inside the Home Network Controller. <ul style="list-style-type: none"> <li>• If the "status" LED on one thermostat control module is not flashing, replace the control module. See "Replacing a PCB/ASM thermostat controller - "10L7118"" on page 87 for more information.</li> <li>• If the "status" LEDs on both thermostat control modules are not flashing, use a voltage meter to verify that the DC power adapter has DC voltage. If no voltage is present, replace the DC power adapter. See "Replacing the DC power adapter - "02K3376"" on page 89 for more information.</li> <li>• If voltage is present on the adapter, replace the card where the DC power adapter was connected. See "Replacing the RS232/485 serial converter - "01K1096"" on page 88 for more information.</li> </ul> </li> <li>3 If no power LEDs are flashing on the thermostat control module, make sure the wireless remote control operates correctly. If it does not, check the power connection to the right side of the controller cabinet. Power is supplied through the UPS connection to the cable near outlet #10.</li> </ol>



*If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website ([www.ibm.com/homedirector](http://www.ibm.com/homedirector)) or call IBM at 1-800-426-7149.*

**Table 9: Problems with thermostat wall displays**

If the problem is...	Here's what to do...
<b>Manual control of thermostats but Home Director cannot control thermostats</b>	<p>Make sure the thermostat has not been disabled by a Home Director routine.</p> <ol style="list-style-type: none"> <li>1 Visually inspect the thermostat control modules inside the Home Network Controller. <ul style="list-style-type: none"> <li>• If the "status" LED on one thermostat control module is not flashing, replace the control module. See "Replacing a PCB/ASM thermostat controller - "10L7118"" on page 87 for more information.</li> <li>• If the "status" LEDs on both thermostat control modules are not flashing, use a voltage meter to verify that the DC power adapter has DC voltage. If no voltage is present, replace the DC power adapter. See "Replacing the DC power adapter - "02K3376"" on page 89 for more information.</li> <li>• If voltage is present on the adapter, replace the card where the DC power adapter was connected. See "Replacing the RS232/485 serial converter - "01K1096"" on page 88 for more information.</li> </ul> </li> <li>2 If no power LEDs are flashing on the thermostat control module, make sure the wireless remote control operates correctly. If it does not, check the power connection to the right side of the controller cabinet. Power is supplied through the UPS connection to the cable near outlet #10.</li> </ol>
	<p><i>If any of these problems continue after you take the actions listed, see the Installer Support area of the Home Director website (<a href="http://www.ibm.com/homedirector">www.ibm.com/homedirector</a>) or call IBM at 1-800-426-7149.</i></p>

**Table 9: Problems with thermostat wall displays**



## Chapter 3: Repair Information

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# Repair Information

## Removals and Replacements



### Danger!

*Failure to follow the steps in “Safety information” may result in personal injury and damage to system components.*

*Si vous ne suivez pas les directives de la section sur la sécurité, vous risquez de vous blesser et d'endommager les composants du système.*

### Safety information

Before you begin any removal or replacement procedure in this chapter, be sure to follow these steps:

- 1 Turn off the 15 amp Home Director circuit breaker in the main circuit panel.
- 2 Remove the Home Network Controller front panel.
  - a Unlock the panel.
  - b Lift up on the handles in the front panel. When the panel stops, pull it straight out from the cabinet.
- 3 Wait 2-3 minutes for the Uninterruptable Power Supply (UPS) to shut down the dedicated processor. The UPS will click and the green power light will no longer be lit when the UPS turns off.

If you are restarting the Home Director system, turn the circuit breaker on after the UPS turns off.

- 4 Unplug the “Battery Backup” plug from the UPS inside the Home Network Controller cabinet.

Failure to follow these steps may result in personal injury and damage to system components.

### Ordering parts

After you have diagnosed a failing component, you should refer to the “FRU Part Number Lists” on page 99 for part number information. Use the part numbers on these pages as a guide to ordering parts.

### Special considerations

- Some components in the Home Director system are sensitive to electrostatic discharge. Use an electrostatic discharge (ESD) strap to establish a personal ground. If you do not have an ESD strap, establish a personal ground by touching a ground point before handling a static-sensitive Field Replacement Unit (FRU).
- Before you disconnect any cables:
  - a Take note of their location and orientation. When you install a FRU, reconnect the cables to their original location.
  - b Release the cable tie by pressing on the tab on the locking block and pulling the tie out of the block. **DO NOT** cut the cable tie.
  - c When you have completed all of the replacements, secure the cables with the cable ties.



### Note

*Do not cut cable ties to release cables. Cable ties are designed to be used again but they are not designed to be removed from the cabinet after they have been installed.*

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## General Hardware

### **Replacing the power-line blocking coupler “10L7421” or signal repeater “10L7422”**

The power-line blocking coupler and signal repeater should only be replaced by a Licensed Electrician. Follow acceptable wiring practices to remove the old coupler or repeater and install a new one.

### **Replacing a 4 button wall switch “03K8683” or dimmer switch “03K0685”**

Home Director switches should be replaced only by a Licensed Electrician. Follow acceptable wiring practices to remove the old switch and install a new one.

**NOTE:** Be sure you change the address on the new switch to be the same as the address on the switch you are replacing. For more information, see “Addressing Home Director switches” on page 16.

### **Replacing the power-line communications module - “10L7423”**

Read and follow the instructions in “Removals and Replacements” on page 71 before you continue with the procedures in this section.

To replace the interface module:

- 1 Unplug the module from power outlet #3 inside the Home Network Controller cabinet.
- 2 Unplug the interface cable from the serial expander card cable.
- 3 Plug the interface cable from the new module into the connector on the serial expander card cable.
- 4 Plug the module into power outlet #3 inside the Home Network Controller cabinet.
- 5 Reconnect the “Battery Backup” cable to the UPS inside the Home Network Controller cabinet.
- 6 Reinstall the Home Network Controller front panel and lock it.
- 7 Turn on the Home Director circuit breaker.

### **Replacing the remote sensor (inside the Home Network Controller) - “10L7424”**

Read and follow the instructions in “Removals and Replacements” on page 71 before you continue with the procedures in this section.

To replace the remote sensor inside the Home Network Controller:

- 1 Remove the emitter from the face of the remote sensor.
- 2 Locate the two cable ties that hold the remote sensor to the UPS bracket and cut them. This will release the sensor. Remove the cable ties from the mount.
- 3 Unplug the sensor from the dedicated processor, remove the cable from any cable clamps, and remove it from the cabinet.

## Repair Information

- 4 Use the 7-1/2" cable ties that should be located in the documentation pocket of the front panel to re-install the sensor on the UPS bracket. For more information on attaching the cable ties to the modulator and the mount, see step 5 on page 31.
- 5 Wrap any excess cable and place it into the cable clamp provided.
- 6 Clean the face of the new remote sensor.  
If you do not adequately clean the sensor, the tape for the infrared emitter may not stick properly and result in service calls.
- 7 Clean the old tape from the emitter and attach a new piece of double sided tape.
- 8 Align the LED on the emitter with the center of the infrared remote sensor face. Attach the emitter to the face of the sensor.
- 9 Reconnect the "Battery Backup" cable to the UPS inside The Home Network Controller cabinet.
- 10 Reinstall the Home Network Controller front panel and lock it.
- 11 Turn on the Home Director circuit breaker.

### **Replacing the wireless remote - "10L7431"**

If batteries are not already installed, install them now. If batteries are installed but the "low battery" indicator light is lit, install new batteries.

### **Replacing the video modulator - "10L7426"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the modulator:

- 1 Unplug the RG-6, DC power, audio, and composite video cables from the modulator you are replacing.
- 2 Locate the three cable ties that hold the video modulator to the UPS and cut them. This will release the video modulator. Remove the ties from the adhesive back mounts.
- 3 Remove the modulator from the Home Network Controller cabinet.
- 4 Locate the new modulator and remove it from the packaging.
- 5 Hold the video modulator so the cables face the top of the Home Director cabinet and the back of the modulator faces the back of the cabinet.
- 6 Install 7-1/2" cable ties (should be located in the documentation pocket of the front panel) into the adhesive bases on the UPS. Strap the video modulator onto UPS. For more information on attaching the cable ties to the modulator and the mount, see "Installing the video modulator" on page 36.
- 7 Plug the composite video, audio, DC power, and RG-6 cables into the new modulator. Tighten the nut on the RG-6 cable.
- 8 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 9 Turn on the Home Director circuit breaker.

- 10 Set the Home Director channel on the video modulator to the same channel as the modulator you replaced. For more information, see "Program the Home Director channel" on page 47.
- 11 Reinstall the Home Network Controller front panel and lock it.

#### **Replacing the composite video cable - "28L1285"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Unplug the cable from the video modulator.
- 2 Unplug the cable from the Home Director dedicated processor.
- 3 Remove the cable from any cable ties and the cabinet.
- 4 Plug the new cable into the composite video connector of the Home Director dedicated processor.
- 5 Plug the other end of the cable into "VIDEO" connector of the video modulator.
- 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

#### **Replacing the audio cable - "28L1286"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Unplug the cable from the video modulator.
- 2 Unplug the cable from the Home Director dedicated processor.
- 3 Remove the cable from any cable ties and the cabinet.
- 4 Plug the new cable into the audio connector of the Home Director dedicated processor.
- 5 Plug the other end of the cable into "AUDIO IN" connector of the video modulator.
- 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

#### **Replacing the video modulator DC power adapter - "02K3375"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Unplug the power cable from the video modulator.
- 2 Unplug the other end of the cable from power outlet #9 in the Home Network Controller cabinet.
- 3 Plug the new adapter into power outlet #9 in the cabinet.



## Repair Information

- 4** Plug the other end of the cable into the "Power 15VDC 300mA" connector on the video modulator.
- 5** Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 6** Turn on the Home Director circuit breaker.
- 7** Set the Home Director channel on the video modulator to the same channel as the modulator you replaced.
- 8** Reinstall the Home Network Controller front panel and lock it.

---

## Home Network Controller Dedicated Processor

 **Danger!**

*When you remove or install the dedicated processor on the crossbar, do not remove your hand until you have reinstalled the thermostat controller chassis. If you do, it may fall and personal injury or damage may occur.*

*Lorsque vous retirez ou installez le processeur spécialisé sur la tige transversale, ne retirez votre main qu'après avoir installé le châssis du contrôleur de thermostat. Autrement, il pourrait tomber et causer des blessures ou des dommages.*

 **Note**

*Connect the correct serial expander cable to the power-line communications module. If you do not, the software will not operate properly.*

### Removing and reinstalling the dedicated processor from the Home Network Controller Cabinet

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To remove the dedicated processor:

- 1 Unplug all of the cables connected to the dedicated processor.

For more detailed connection information, see "Installing the Home Network Controller dedicated processor" on page 28.

- 2 Locate and remove the nuts that hold the thermostat control chassis.

**Note:** Use caution in this procedure. You will need to hold the dedicated processor in the Home Director cabinet while you remove the thermostat controller chassis and coupling nuts. You can complete the procedure with one person. However, if possible, it may be beneficial to have an additional person to assist with this step.

DO NOT remove your hand from the dedicated processor while it is on the crossbar.

- 3 If you are replacing the entire dedicated processor:

- a Remove the diskette from the diskette drive and insert it into the new dedicated processor.
- b Place the new dedicated processor on the shelf and reverse the removal procedures.

- 4 Reinstall the thermostat controller chassis. DO NOT allow the thermostat controller chassis to hang from the cables.

### Replacing the serial expander cable - "28L1275"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Unplug the serial expander cable from the serial card in the dedicated processor.
- 2 Plug the new serial expander cable into the dedicated processor.
- 3 Unplug each expander cable connector from the serial cable to which it is connected.
- 4 Plug the cables from the new expander cable into the serial connectors:

- Connect the "Port 1" connector to the power-line signal carrier serial cable
- Connect the "Port 2" connector to the security system serial cable.
- Connect the "Port 3" connector to the thermostat controller chassis.

**NOTE:** It is important to connect the module serial cable to the correct port on the serial expander cable. If you do not, the software will not operate properly.

- 5 Wrap any excess cables and place them in the cable ties.
- 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.

## Repair Information

- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

### **Replacing the dedicated processor power cable - "28L1287"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Unplug the power cable from the UPS and the dedicated processor.
- 2 Plug the new power cable into the dedicated processor and UPS.
- 3 Reinstall the Home Network Controller front panel and lock it.
- 4 Turn on the Home Director circuit breaker.

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## Home Network Controller Cabinet

### Replacing the front panel - "03K8686"

- 1 Unlock and remove the Home Network Controller front panel.
- 2 Install the new front panel and lock it.

### Replacing the Home Network Controller cabinet housing - "03K8687"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

Temporarily label and remove all the components installed in the cabinet. Use the installation instructions (in reverse order) to remove the components.

Use the installation instructions in this document to install the new cabinet and all internal components.

### Replacing a power outlet - "01K1097"

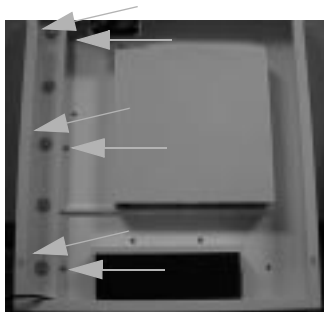
Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the power outlet:

- 1 Unplug all power adapters connected to outlets on the side of the cabinet you are working with.

Take special note of where these cables are connected. You will need to plug the cables back into the same outlets.

- 2 Locate and remove the 6 nuts that hold the outlet cover.



- 3 Remove the cover.
- 4 Locate the outlet you want to replace and disconnect the wires from it.
- 5 Locate and remove the 2 nuts that hold the outlet.
- 6 Use the nuts you removed to attach the new outlet to the cover.
- 7 Follow acceptable wiring practices to reconnect the wires to the outlet.
- 8 Reinstall the outlet cover. Make sure no cables are pinched between the outlet cover and the cabinet.

## Repair Information

- 9 Plug the power adapters into the exact location they were plugged into when you removed them.
- 10 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 11 Turn on the Home Director circuit breaker.
- 12 Verify that the outlet you replaced has the correct voltage.
- 13 Reinstall the Home Network Controller front panel and lock it.

### Replacing the fan - "03K8688"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the fan:

- 1 Unplug the power cable from the fan.
- 2 Locate and remove the 4 screws that hold the fan into the Home Network Controller cabinet.



- 3 Use the screws you removed to install the new fan in the cabinet.  
**IMPORTANT:** Make sure the fan is oriented properly. There are two arrows on the side of the fan. When the fan is properly oriented, one arrow points toward the front of the cabinet and the other points toward the bottom of the cabinet.
- 4 Plug the power cable into the fan.
- 5 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 6 Make sure the fan is turning in the correct direction. The fan is not thermostatically controlled and must operate when the power is turned on.
- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

### Replacing the fan cable assembly - "28L1288"

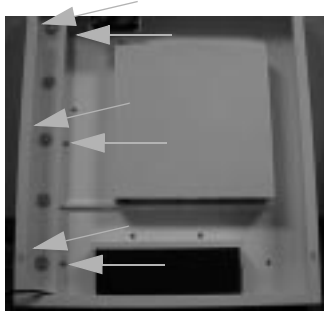
Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the fan and cable assembly:

- 1 Unplug the power cable from the fan.
- 2 Unplug all power cables connected to outlets on the left side of the cabinet.

Take special note of where these cables are connected. You will need to plug the cables back into the same outlets.

**3** Locate and remove the 6 nuts that hold the outlet cover.



**4** Remove the cover.

**5** Locate the outlet where the fan power cable is attached and disconnect the wires from it.

**6** Follow acceptable wiring practices to reconnect the new fan power cable and the outlet wires.

**7** Reinstall the outlet cover.

**8** Plug the power adapters into the exact location they were plugged into when you removed them.

**9** Plug the power cable into the fan.

**10** Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.

**11** Turn on the Home Director circuit breaker.

**12** Verify that the fan is turning in the correct direction and that the outlet has the correct voltage.

**13** Reinstall the Home Network Controller front panel and lock it.

# Repair Information

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## Home Network Connection Center

Modules installed in the cabinet may be Electrostatic Sensitive Devices (ESD). Follow the precautions in "Special considerations" on page 71 before handling modules.

### **Replacing the distribution modules for telephone - "10L7462", video - "10L7463", computer network - "10L7464", camera - "10L7465", and power - "02K3379"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Remove the front panel from the Home Network Connection Center cabinet.
  - a Turn the locking knob on the cover counter-clockwise until it unlocks from the cabinet.
  - b Pull the cover out and down until it slides out of the cabinet.
- 2 If the module you are replacing has a power cable, unplug it.
- 3 Note the location of all other installed cables. You will need to refer to these notes when you reinstall the module.
- 4 Unplug all installed cables.
- 5 Locate and pull out on the fasteners that hold the module in the cabinet. **DO NOT** pull the fasteners completely out of the module. The fasteners will click when they are loosened. Some modules have two fasteners; other modules have four fasteners.
- 6 Pull the module forward and out of the cabinet.
- 7 If the module you are replacing does not have a ground strap, skip to step 10.

If the module you are replacing has a ground strap, follow these instructions to disconnect it:

  - a Locate and pull out on the two fasteners that hold the video distribution module in the cabinet. **DO NOT** pull the fasteners completely out of the module. The fasteners will click when they are loosened.



- b Pull the module forward until it slides out of the cabinet.

**NOTE:** The video distribution module is heavy and may fall from the cabinet if you do not use caution when removing it.
    - c Remove the nut that holds the ground straps onto the cabinet.
    - d Remove the ground straps and temporarily replace the nut.
- 8 Connect the module ground wire:
  - a Pull the ground wire of the old module through the opening.

- b** Thread the ground wire of the new module through the opening and to the common grounding point under the video modulator.
  - c** Connect the ground strap of the new module and all other modules to the cabinet. Use the nut you removed earlier.
- 9** Reinstall the video distribution module:
- a** Slide the video module into the cabinet.
- Important:** Make sure the module is completely seated and no cables are pinched between the video module and the cabinet.
- b** Align the fasteners on the new video module with the fastener holes in the cabinet.
  - c** Press on the fasteners until they lock. The fasteners will click when they lock.
- 10** Slide the new module into the cabinet.
- Important:** Make sure the module you are replacing is completely seated and no cables are pinched between the module and the cabinet.
- 11** Align the fasteners on the new module with the fastener holes in the cabinet.
- 12** Press on the fasteners until they lock. The fasteners will click when they lock.
- 13** Plug in all cables you removed. Consult your notes to ensure proper re-connection. If you need additional information on module cable connections, see "Installing Home Network Connection Center components" on page 39.
- 14** If the module requires a power cable, plug it into the power connector.
- 15** Reinstall the Home Network Connection Center plastic cover and lock it.
- 16** Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 17** Reinstall the Home Network Controller front panel and lock it.
- 18** Turn on the Home Director circuit breaker.

#### **Replacing the Home Network Connection Center power supply connector in the Home Network Controller cabinet - "02K3380"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1** Remove the ring tongue connectors attached to the power supply from the termination block near power outlet #1 in the Home Network Controller cabinet.
- 2** Unplug the power supply from outlet #1.
- 3** Locate the 120VAC 1A adapter and remove it from its packaging.
- 4** Measure and cut the cable at 14" from the power adapter.
- 5** Separate and strip both conductors on both cut ends of the cable.
- 6** Attach a ring tongue connector to each conductor.
- 7** Plug the AC adapter into power outlet #1 in the Home Network Controller cabinet.



## Repair Information



### Danger!

*Use a voltage meter to test all connections to the termination block. Failure to test connections may result in damage to hardware.*

*Utilisez un voltmètre pour vérifier chacune des connexions au boîtier de terminaisons. L'omission de ces tests peut entraîner des dommages au matériel.*

- 8 Attach the AC adapter cord connectors to the termination block near outlet #1.

**NOTE:** Use a voltage meter to test the connections (see page 40) and verify that all connections have been made properly. Failure to properly connect and test wiring between the Home Network Controller and the Home Network Connection Center will result in damage.

- 9 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 10 Reinstall the Home Network Controller front panel and lock it.
- 11 Turn on the Home Director circuit breaker.

### Replacing the DC power mini connector cable inside the Home Network Connection Center - "02K3380"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Remove the front cover of the Home Network Connection Center.
- 2 Unplug the power cables from the front of the Power Distribution Module.
- 3 Remove the power cable from the back of the Power Distribution Module:
  - a Pull out on the two black pins that hold the module into the side panel.
  - b When the module comes out of the panel, unplug the power cord from the back.
  - c Temporarily store the module in a safe place.
- 4 Label and unplug cables from the video distribution module.
- 5 Pull out on the two black pins that hold the module in the cabinet.
- 6 Locate the power cable you removed from the back of the Power Distribution Module and disconnect it from the termination block.
- 7 Locate the 120VAC 1A adapter and remove it from its packaging.
- 8 Measure and cut the cable at 18" from the mini connector.
- 9 Separate and strip both conductors on both cut ends of the cable.
- 10 Attach a ring tongue connector to each conductor.
- 11 Plug the power cable mini connector to the back of the Power Distribution Module.
- 12 Reinstall the Power Distribution Module:
  - a Thread the power cord into the opening for the module.
  - b Place the module into the opening and push the black pins in until they click into place.
- 13 Locate the end of the new power cable with the ring tongue connectors installed.
- 14 Attach the connectors to the termination block.

**NOTE:** Use a voltage meter to test the connections (see page 40) and verify that all connections have been made properly. Failure to properly connect and test wiring between the Home Network Controller and the Home Network Connection Center will result in damage.

**Danger!**

*Use a voltage meter to test all connections to the termination block. Failure to test connections may result in damage to hardware.*

*Utilisez un voltmètre pour vérifier chacune des connexions au boîtier de terminaisons. L'omission de ces tests peut entraîner des dommages au matériel.*

- 15 Reinstall the video distribution module:
  - a Place the module into the opening and push the black pins in until they click into place.
  - b Plug in all of the cables you removed and tighten the nuts.
- 16 Plug any remaining power cables into the Power Distribution Module.
- 17 Reinstall the Home Network Connection Center front panel.
- 18 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 19 Reinstall the Home Network Controller front panel and lock it.
- 20 Turn on the Home Director circuit breaker.

**Replacing the Home Network Connection Center DC patch cord - "28L1289"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

- 1 Remove the front cover of the Home Network Connection Center.
- 2 Unplug the power cable from the front of the Power Distribution Module.
- 3 Unplug the power cable from the module.
- 4 Plug the new power cable into the module and the Power Distribution Module.
- 5 Reinstall the Home Network Connection Center front panel.
- 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

# Repair Information

## HVAC Control Kit

**Caution!**

*Before you replace a thermostat controller, you must ensure that the Home Director and HVAC circuit breakers are turned off.*

*Avant de remplacer un contrôleur de thermostat, assurez-vous que le courant a été coupé par les disjoncteurs Home Director et C.V.C.*

### Replacing the wall thermostat display - "10L7434"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

Turn off any circuit breakers that control the HVAC components.

To replace the wall thermostat display:

- 1 Remove the cover from the wall display.
  - a Hold the top of the display while you pull the bottom toward you.
  - b Lift the display off of the tabs at the top of the wall mount.



- 2 Locate and remove the two screws in the wall mount.

The wall mount should detach from the wall.
- 3 Disconnect the wires from the back of the mount.
- 4 Connect the wires to the back of the new wall mount.
- 5 Use the screws you removed previously to install the mount on the wall.
- 6 Attach the wall display cover:
  - a Align the top of the display with the top of the wall mount.
  - b Press the bottom of the display onto the wall mount until it clicks into place.
- 7 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 8 Reinstall the Home Network Controller front panel and lock it.
- 9 Turn on the Home Director circuit breaker.

### Replacing the thermostat controller chassis - "10L7436"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

Turn off any circuit breakers that control the HVAC components.

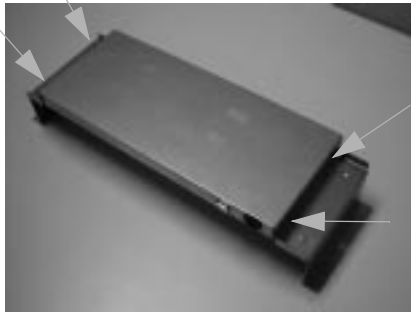
**Caution!**

*Before you replace a thermostat controller, you must ensure that the Home Director and HVAC circuit breakers are turned off.*

*Avant de remplacer un contrôleur de thermostat, assurez-vous que le courant a été coupé par les disjoncteurs Home Director et C.V.C.*

To replace the thermostat controller chassis:

- 1 Locate and loosen (do not remove) the four screws that hold the thermostat control chassis cover.



- 2 Remove the cover.
- 3 Unplug the DC power adapter from the chassis.
- 4 Disconnect the thermostat wall display cables from the thermostat controllers and pull the cables out of the chassis.
- 5 Disconnect the HVAC cables from the controllers and pull the cables out of the chassis.
- 6 Unplug the serial expander cable from the thermostat controller chassis.
- 7 Remove the infrared transmitter from the chassis:
  - a Unplug the RG-6 cables from the transmitter and pull them out of the chassis (as required).
  - b Unplug the emitter and DC power adapters from the transmitter and pull them out of the chassis.
  - c Remove the nut and washer from the RG-6 connector that protrudes from the chassis.
  - d Remove the transmitter from the chassis.
- 8 Locate and remove the coupling nuts that hold the thermostat control chassis.
- 9 Place one hand on the dedicated processor while you remove the chassis from the cabinet.

**NOTE:** Use caution in this procedure. You will need to hold the dedicated processor in the Home Director cabinet while you install the new thermostat controller chassis and coupling nuts. You can complete the procedure with one person. However, if possible, it may be beneficial to have an additional person to assist with this step.

DO NOT remove your hand from the dedicated processor while it is on the crossbar.
- 10 Place the new chassis over the dedicated processor, onto the 1/2-20 studs, and secure it with the coupling nuts.
- 11 Use a 5/16 wrench to tighten the coupling nuts.

**NOTE:** The thermostat controller chassis is not designed to rest flush against the bottom surface of the cabinet. DO NOT overtighten the coupling nuts.
- 12 Install the infrared transmitter into the new thermostat controller chassis:

## Repair Information

- a Place the transmitter into the chassis so the power connectors and LED are facing the bottom of the chassis.
  - b Place the washer and nut over the RG-6 connector that protrudes from the chassis. Use a 3/8" box end wrench to tighten the nut. Make sure the transmitter rests on the chassis standoff.
  - c Plug the RG-6 and audio cables into the transmitter.
- 13 Plug the serial expander cable into the chassis.
  - 14 Connect the HVAC cable to the thermostat controllers.
  - 15 Connect the thermostat wall display cables to the thermostat controllers.
  - 16 Plug the DC power cable into the thermostat controller chassis.
  - 17 Install the new thermostat controller chassis cover.
  - 18 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
  - 19 Reinstall the Home Network Controller front panel and lock it.
  - 20 Turn on the Home Director and HVAC circuit breakers.



### Caution!

*Before you replace a thermostat controller, you must ensure that the Home Director and HVAC circuit breakers are turned off.*

*Avant de remplacer un contrôleur de thermostat, assurez-vous que le courant a été coupé par les disjoncteurs Home Director et C.V.C.*

### Replacing a PCB/ASM thermostat controller - "10L7118"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

Turn off any circuit breakers that control the HVAC components.

- 1 Locate and loosen (do not remove) the four screws that hold the thermostat control chassis cover.



- 2 Remove the cover.
- 3 Disconnect the thermostat wall display cable from the thermostat controller.
- 4 Disconnect the HVAC cable from the thermostat controller.
- 5 Disconnect the end of "controller-to-controller" cable that is connected to the controller you are replacing.
- 6 If the controller you are replacing is connected to the RS232/485 serial converter, disconnect the cable from the controller.

- 7 Use a pair of small needle nose pliers to gently squeeze the tab on the white pins that hold the controller into the chassis. While you squeeze each tab, gently lift up on the corner of the controller. When all four corners of the controller pass over the tabs, pull the controller straight out of the chassis.
- 8 Locate the new controller and hold it so the power connector faces the bottom of the thermostat controller chassis.
- 9 Align the four holes with the white pins. Press the controller onto the pins until the tabs click and hold it in place.
- 10 Connect the RS232/485 serial converter cable if required.
- 11 Connect the "controller-to-controller" cable to the new controller.
- 12 Connect the HVAC cables to the thermostat controller.
- 13 Connect the thermostat wall display cable to the controller.
- 14 Reinstall the thermostat controller chassis cover.
- 15 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 16 Reinstall the Home Network Controller front panel and lock it.
- 17 Turn on the Home Director and HVAC circuit breakers.

**Caution!**

*Before you replace a thermostat controller, you must ensure that the Home Director and HVAC circuit breakers are turned off.*

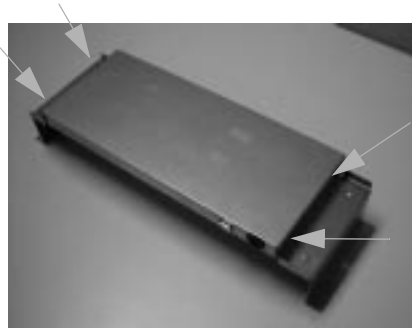
*Avant de remplacer un contrôleur de thermostat, assurez-vous que le courant a été coupé par les disjoncteurs Home Director et C.V.C.*

**Replacing the RS232/485 serial converter - "01K1096"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

Turn off any circuit breakers that control the HVAC components.

- 1 Locate and loosen (do not remove) the four screws that hold the thermostat control chassis cover.



- 2 Remove the cover.
- 3 Unplug the DC power and serial expander cables from the RS232/485 serial converter.
- 4 Disconnect the cable between the converter and the thermostat controller.
- 5 Use a small screwdriver to loosen the screws that hold the converter in the chassis (use your fingers if the converter has thumbscrews). When the screws have been loosened, remove the converter.

## Repair Information

- 6 Place the new converter into the chassis and tighten the screws.
- 7 Plug the serial expander and DC power cable into the converter.
- 8 Reinstall the thermostat controller chassis cover.
- 9 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 10 Reinstall the Home Network Controller front panel and lock it.
- 11 Turn on the Home Director and HVAC circuit breakers.

### **Replacing the DC power adapter - "02K3376"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the DC power adapter:

- 1 Unplug the thermostat controller DC power adapter cable from the bottom of the thermostat controller chassis.
- 2 Unplug the adapter from the power outlet inside the Home Network Controller cabinet.
- 3 Plug the new DC adapter into the same power outlet.
- 4 Plug the DC power adapter cable into the connector on the bottom of the thermostat controller chassis.
- 5 Reinstall the thermostat controller chassis cover.
- 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

---

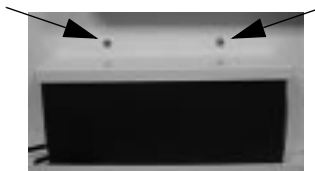
## Uninterruptable Power Supply (UPS)

### Replacing the UPS - "02K3377"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the UPS:

- 1 Unplug all of the cables connected to the UPS.
- 2 Locate the three cable ties that hold the video modulator to the UPS and cut them. This will release the video modulator.
- 3 Loosen the two nuts that hold the top clamp for the UPS.



- 4 Slide the top clamp up until the UPS can be easily removed. Tighten one nut to hold the clamp in place.
- 5 Remove the UPS from the Home Network Controller Cabinet.
- 6 Locate the new UPS and follow the instructions that come with it to connect the battery.
- 7 Place the new UPS into the cabinet.
- 8 Loosen the top clamp nut and slide the clamp down over the UPS. The bottom of the clamp should be level and flush with the top of the UPS.
- 9 Tighten the nuts.
- 10 Reinstall the video modulator.  
Use the adhesive back mounts and 7-1/2" cable ties that should be located in the documentation pocket of the front panel. For more information on installing the adhesive back mounts, see "Installing the video modulator" on page 36.
- 11 Plug in all of the cables you removed in step 1.  
For more detailed connection information, see "Installing the Uninterruptable Power Supply (UPS)" on page 27.
- 12 Reinstall the Home Network Controller front panel and lock it.
- 13 Turn on the Home Director circuit breaker.

### Replacing the DB9M -DB9F dedicated processor to UPS signal cable - "28L1290"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.



## Repair Information

To replace the signal cable:

- 1 Unplug the serial cable from the UPS.
- 2 Unplug the other end of the serial from the dedicated processor.
- 3 Plug the female end of the new serial cable into the serial connector on the dedicated processor.
- 4 Plug the male end of the new serial cable into the serial connector on the UPS.
- 5 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 6 Reinstall the Home Network Controller front panel and lock it.
- 7 Turn on the Home Director circuit breaker.

### **Replacing the RJ12M - RJ12M dedicated processor to UPS telephone cable - "28L1291"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the telephone cable between the dedicated processor and UPS:

- 1 Unplug the telephone cable from the dedicated processor.
- 2 Unplug the telephone cable from the UPS.
- 3 Remove the cable from the cable ties and the cabinet.
- 4 Plug one end of the new telephone cable into the dedicated processor.
- 5 Plug the other end of the cable into the UPS.
- 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 7 Reinstall the Home Network Controller front panel and lock it.
- 8 Turn on the Home Director circuit breaker.

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## Infrared Remote Kit

### Replacing the TV remote target - "10L7466"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the target:

- 1 Turn off the television.
- 2 Unplug the target from the wall interface.
- 3 Plug the new target into the wall interface.
- 4 Plug in the UPS power cable inside the Home Network Controller cabinet.
- 5 Reinstall the Home Network Controller front panel and lock it.
- 6 Turn on the Home Director circuit breaker.

### Replacing the Remote Power Injector (RPI) inside the Home Network Controller cabinet - "10L7467"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the interface:

- 1 Locate and loosen the 4 screws that hold the thermostat controller chassis cover.



- 2 Remove the cover.
- 3 Remove the RPI from the chassis:
  - a Unplug the RG-6 cables from the RPI.
  - b Unplug the emitter and DC power adapter from the RPI.
  - c Remove the nut and washer from the RG-6 connector that protrudes from the chassis.
  - d Remove the RPI from the chassis.
- 4 Install the RPI into the new thermostat controller chassis:

## Repair Information

- a Place the RPI into the chassis so the power connectors and LED are facing the bottom of the chassis.
  - b Place the washer and nut over the RG-6 connector that protrudes from the chassis. Use a 3/8" box end wrench to tighten the nut. Make sure the RPI rests on the chassis standoff.
  - c Plug the RG-6, power, and emitter cables into the RPI.
- 5 Reinstall the thermostat controller chassis cover.
  - 6 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
  - 7 Reinstall the Home Network Controller front panel and lock it.
  - 8 Turn on the Home Director circuit breaker.

### Replacing the DC power adapter for the Remote Power Injector inside the Home Network Controller cabinet - "28L1375"

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the power adapter:

- 1 Locate and loosen the 4 screws that hold the cover on the thermostat controller chassis.



- 2 Remove the cover.
- 3 Unplug the power cable from the remote power injector.
- 4 Unplug the power cable from the outlet inside the cabinet.
- 5 Plug the new power cable into the interface.
- 6 Plug the other end of the power cable into power outlet #8 inside the cabinet.
- 7 Reinstall the thermostat controller chassis cover.
- 8 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 9 Reinstall the Home Network Controller front panel and lock it.
- 10 Turn on the Home Director circuit breaker.

### **Replacing the in-wall interface in a room where the TV remote target is located - "10L7468"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the interface:

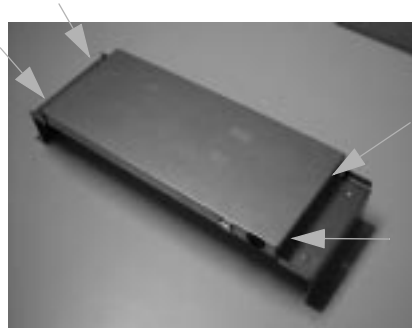
- 1 Unplug the wireless remote target.
- 2 Remove the wall plate that covers the interface.
- 3 Remove the screws that hold the interface in the wall.
- 4 Pull the interface out of the wall and unplug the RG6 cable on the back.
- 5 Reinstall the interface in the wall with the screws you removed.
- 6 Reinstall the wall plate.
- 7 Plug in the wireless remote target.
- 8 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 9 Reinstall the Home Network Controller front panel and lock it.
- 10 Turn on the Home Director circuit breaker.

### **Replacing the Remote Emitter inside the Home Network Controller - "10L7469"**

Read and follow the instructions in "Removals and Replacements" on page 71 before you continue with the procedures in this section.

To replace the remote emitter in the Home Network Controller cabinet:

- 1 Locate and loosen the 4 screws that hold the cover on the thermostat controller chassis.



- 2 Remove the cover.
- 3 Unplug the emitter from the remote sensor.
- 4 Unplug the emitter from the in-wall target interface inside the thermostat controller chassis.
- 5 Remove the emitter from the cabinet.
- 6 Install the new emitter in the cabinet.

- 7 Attach the receiver end of the emitter to the remote sensor.
- 8 Plug the other end of the emitter into the in-wall target interface inside the thermostat controller chassis.
- 9 Reinstall the thermostat controller chassis cover.
- 10 Reconnect the "Battery Backup" cable to the UPS inside the Home Network Controller cabinet.
- 11 Reinstall the Home Network Controller front panel and lock it.
- 12 Turn on the Home Director circuit breaker.





## Appendix A: Fru Part Number Tables

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## Appendix A: Fru Part Number Tables

### FRU Part Number Lists

The following table contains part numbers for Field Replaceable Units (FRUs) you can order for customer repairs. The tables contain the FRU part number, a brief description, and the page on which the replacement instructions are presented.

#### General Hardware

FRU Number	Description	Page Number
10L7421	Power-line blocking coupler	72 installation only by licensed electrician
10L7422	Power-line signal repeater	72 installation only by licensed electrician
03K8683	Programmable 4 button wall controller	72 installation only by licensed electrician
03K0685	Dimmer switch	72 installation only by licensed electrician
10L7423	Power-line communications interface module	72
10L7424	Remote sensor (target inside the Home Network Controller cabinet)	72
10L7431	Wireless remote	73
10L7426	Video modulator	73
28L1285	Composite video cable (computer to modulator)	74
28L1286	Audio cable (computer to modulator)	74
02K3375	DC power cable (video modulator)	74

Table 10: General Hardware FRU Numbers

### Home Network Controller Computer

FRU Number	Description	Page Number
10L7425	Complete Computer Assembly	76
28L1275	Serial Expander Cable	76
28L1287	Power Cable	77

Table 11: Home Network Controller Computer FRU Numbers

### Home Network Controller Cabinet

FRU Number	Description	Page Number
03K8686	Door (Front Panel)	78
03K8687	Cabinet Housing	78
01K1097	Power outlet	78
03K8688	Fan	79
28L1288	Fan Cable Assembly	79
03K8693	Key	Not applicable

Table 12: Home Network Controller Cabinet FRU Numbers

## Appendix A: Fru Part Number Tables

### Home Network Connection Center Cabinet

FRU Number	Description	Page Number
03K8682	Central Wiring Rough-in kit including: <ul style="list-style-type: none"> <li>• Installation Manual (20L0435)</li> <li>• Key (03K8692)</li> </ul>	Not applicable
20L0435	Installation Manual	Not applicable
03K8692	Key	Not applicable
10L7462	Module, Residential Telcom (telephone distribution module)	81
10L7463	Module, Video Amplifier (video distribution module)	81
10L7464	Module, Computer Network (Ethernet distribution module)	81
10L7465	Module, Camera (camera distribution module)	81
02K3379	Module, Power Distribution (power distribution module)	81
02K3380	Power Supply: <ul style="list-style-type: none"> <li>• 1A DC power brick in the Home Network Controller cabinet</li> <li>• Mini connector in the Home Network Connection Center cabinet (Both applications use the same part)</li> </ul>	82 83
28L1289	DC Power Patch Cord	84

Table 13: Home Network Connection Center FRU Numbers

### Consumer Kit

FRU Number	Description	Page Number
20L0418	Complete kit	Not applicable
Not applicable	User Manual	Not applicable
Not applicable	Warranty Information	Not applicable
Not applicable	Diskette	Not applicable

Table 14: Consumer Kit FRU Numbers

### HVAC Control Kit

FRU Number	Description	Page Number
10L7434	Wall Display	85
10L7436	Thermostat Controller Chassis	85
10L7118	PCB ASM (thermostat) Controller	87
01K1096	RS232/485 Converter	88
02K3376	DC Power Brick	89

Table 15: HVAC Control Kit FRU Numbers

## Appendix A: Fru Part Number Tables

### Uninterruptible Power Supply (UPS)

FRU Number	Description	Page Number
02K3377	UPS	90
28L1290	DB9M - DB9F UPS Signal Cable (computer to UPS)	90
28L1291	RJ12M - RJ12M UPS Telephone Cable (computer to UPS)	91

Table 16: Uninterruptible Power Supply (UPS) FRU Numbers

### Infrared Remote Kit

FRU Number	Description	Page Number
10L7466	TV remote target	92
10L7467	Target Interface (in Home Network Controller cabinet)	92
10L7468	In-wall infrared interface	94
10L7469	Emitter	94
28L1375	DC Power Brick	93

Table 17: Infrared Remote Kit FRU Numbers

### Installer Publications

FRU Number	Description	Page Number
20L0414	Installer publications including: <ul style="list-style-type: none"><li>• Installation Manual (20L0416)</li><li>• Interconnect Schematic (20L0417)</li></ul>	Not applicable
Not applicable	Installation Manual	Not applicable

Table 18: Installer Publications FRU Numbers

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