SYSTXCCRCT01
Infinity® Series
CAT−5 (Wired) Broadband
Remote Access Module

Carrier

turn to the experts™

Installation Instructions

NOTE: Read the entire instruction manual before starting the installation.

pointSET™ U.S. Pat No. 7,415,102

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SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury or property damage. Consult a qualified installer, service agency or your distributor or branch for information or assistance. The qualified installer or agency must use factory--authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings and cautions included in literature and attached to the unit. Consult local building codes and the current edition of the National Electrical Code (NEC) NFPA 70.

In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1.

Recognize safety information. When you see this symbol ⚠ on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand the signal words **DANGER**, **WARNING**, and **CAUTION**. These words are used with the safety--alert symbol. **DANGER** identifies the most serious hazards, which **will** result in severe personal injury or death. **WARNING** signifies hazards, which **could** result in personal injury or death. **CAUTION** is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. **NOTE** is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

INSTALLATION CONSIDERATIONS

The CAT-5 Broadband Remote Access Module (CAT-5 B-SAM), part number SYSTXCCRCT01, is powered with a field-supplied 24VAC transformer. A 120VAC supply must be near the mounting location when using the accessory plug-in 24VAC transformer. Provisions must be made to secure the accessory plug-in transformer to the outlet. **The D-wire (24VAC) from the Infinity® system must NOT be used to power the Remote Access Module, and should not be connected to the SAM module.**

This instruction covers the physical installation and start up of the CAT-5 B-SAM. Use this instruction to guide the actual installation process after the Infinity system(s) have been installed. One CAT-5 B-SAM is capable of handling two Infinity systems.

INTRODUCTION

The CAT-5 B-SAM is used differently for previous generation Infinity systems using the UID/UIZ wall controls versus the newer Infinity Touch systems.

For previous generation systems using the UID/UIZ wall controls, the SAM connects to a network router and allows remote connectivity for up to two Infinity systems within the same building. The Infinity system owner as well as authorized dealer can monitor and control the system via the Internet. The CAT-5 B-SAM communicates through the homeowner's cable or DSL Internet service. Broadband Internet service with a network router is required. The CAT-5 B-SAM is not compatible with dial-up Internet service. The SAM also provides an interface to Home Automation systems, utilizing either the RS-232 serial port connection, or the web page function, available on the Local Area Network (LAN) within the home or building.

The newer Infinity Touch systems utilize the SAM for ONLY interface to Home Automation systems, utilizing the RS-232 serial port connection. The Touch control DOES NOT support the SAM web page on the LAN, nor connection to the LAN or Internet through the CAT-5 B-SAM Ethernet port. Use the Wi-Fi version of the Infinity Touch wall control when connection to the Internet is desired.

NOTE: *The SAM is designed for operation with the previous generation UID/UIZ wall control systems. As such, it will operate "as-is" with the newer Infinity Touch systems, and may display status codes that are unique to the previous generation UID/UIZ systems, but are irrelevant when the SAM is used with the newer Infinity Touch systems. In addition, some features of the RS-232/ASCII home automation interface will NOT be available with the newer Infinity Touch systems. See the latest version of the SAM Remote Access Interface Specification, available on HVACpartners, for more details on the home automation interface.*

The CAT-5 B-SAM can also monitor a dry-contact sensor to provide a warning for the presence of water in the building, or some other use. If the sensor is active, the Infinity system will not be disabled or shut down.

Computer Requirements *(Previous generation UID/UIZ systems, only)*

The CAT-5 B-SAM uses a web-based application to control and monitor the Infinity system. This application, www.MyInfinity.Carrier.com, will work with any graphic user interface PC operating system (Microsoft, Apple, Linux). The web-based application is optimized for use with Microsoft's Internet Explorer version 6 and above. Other web browsers are compatible with some possible screen formatting issues.

NOTE: This web--based application for the SAM is NOT available for Infinity Touch systems. When using these systems, Internet access is achieved using the Wi-Fi version of the Infinity Touch control, and accessing the www.MyInfinityTouch.com website.

SAM INSTALLATION

BEFORE STARTING:

- **SYSTXCCUID01 or SYSTXCCUIZ01 (version 14 software revision or higher), or** *newer generation* **SYSTXCCITN01, SYSTXCCITC01, or SYSTXCCITW01 (version 08 software revision or higher) wall control is required.**

Check Equipment and Job Site

INSPECT EQUIPMENT - File claim with shipping company, prior to installation, if shipment is damaged or incomplete.

Component Location and Wiring Considerations

⚠ **WARNING**

ELECTRICAL OPERATION HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, the main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one power disconnect switch. Lock out and tag switch with a suitable warning label.

NOTE: All wiring must comply with national, state, and local codes.

LOCATING THE UNIT - CAT-5 B-SAM is approved for indoor use only and should never be installed with any of its components exposed to outdoor environmental conditions. The CAT-5 B-SAM may be installed in any area where the temperature remains between -4°F / -20°C and 158°F / 70°C, and there is no condensation. The cover must be installed to prevent damage from other sources. Do not locate where it will be accessible to children. It should be mounted in the vertical position.

For wiring convenience, the CAT-5 B-SAM can be located anywhere between the network router and HVAC equipment. The CAT-5 B-SAM does not need to be located near the HVAC equipment and can be located near the router, if a long Ethernet cable run cannot be made.

NOTE: *The Ethernet connection is NOT used for newer generation Infinity Touch systems.*

⚠ **CAUTION**

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage.

Do not mount unit on plenum, ductwork, or flush against furnace.

WIRING CONSIDERATIONS - Ordinary thermostat wire is ideal when wiring the CAT-5 B-SAM into the HVAC system (shielded cable is not necessary). Use 22-gauge or larger for normal wiring. Lengths over 100 ft / 30 m should use 20-gauge or larger wire.

For previous generation UID/UIZ systems, Local Area Network (LAN) connections will require appropriate network wire - CAT-5e cable is recommended.

Install Components

INSTALL CAT-5 B-SAM

The CAT-5 B-SAM is designed so that wires can enter it from behind, above, or below. Plan wire routing before mounting.

1. Remove cover to access mounting holes.
2. Mount back plate to wall using screws and wall anchors provided.
3. Level back plate and tighten screws.

⚠ **CAUTION**

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Improper wiring of the ABC connector will cause the system to operate improperly. Check to make sure all wiring is correct before proceeding with installation or turning on of power.

Connect Infinity Systems

Connect the A, B, and C wires from the Infinity system to terminals labeled A1, B1, and C1. Connect the second Infinity System (if present) to the terminals labeled A2, B2 and C2.

ABC bus wiring only requires a three-wire connection; however, it is good practice to run thermostat cable greater than three wires in the event of a damaged or broken wire during the installation.

It is recommended that the following color-code be used when wiring each ABC connector:

A - Green	Data A
B - Yellow	Data B
C - White	24VAC (Com)

NOTE: The D--wire (red-- 24VAC hot) from the Infinity system is NOT connected to the CAT--5 B--SAM.

It is not mandatory that the above color code be used, but each ABC connector in the system MUST be wired consistently.

Connect Auxiliary Sensor (optional)

The CAT--5 B--SAM will support a dry contact sensor for use with water detection or some other use as seen fit. Connect one side of the contacts to connector AUX C (common) and the other side to connector AUX (input). The sensor input can provide up to 20mA at 5 volts d.c. If the sensor input is active, it will not shutdown or affect operation of the HVAC system(s). A pop--up message will appear on the User Interface (wall control) indicating the auxiliary sensor is active.

The homeowner can also be notified via email, if so chosen, by selecting the appropriate options on the Internet website user interface application. See the appropriate website user interface application for more information:

> *For previous generation UID/UIZ systems,* use www.MyInfinity.Carrier.com.

> *For newer generation Infinity Touch systems,* use www.MyInfinityTouch.com. The Auxiliary Sensor email alerts are enabled when the "Urgent" notifications are enabled.

RS-232 Connector – Home Automation System Interface

An RS-232 port has been provided for connection to home automation equipment. Consult your home automation supplier for support. If the particular home automation supplier needs information for the interface, you may supply the latest version of the SAM Remote Access Interface Specification, found on HVACpartners, to the home automation supplier. Designing and providing the interface to the Infinity system through the RS-232 communication port on the SAM is the responsibility of the home automation supplier. Contact your Distributor Service Manager for details, if required.

Ethernet Interface Module

For previous generation systems utilizing the UID/UIZ wall controls, make sure that the connector jumper cable between the main SAM module board is connected to the Ethernet (Cat-5 B--SAM) interface module. See Fig 1.

For newer generation Infinity Touch systems, REMOVE the jumper cable between the main SAM module board and the Ethernet (Cat-5 B--SAM) interface module. The Ethernet interface module is NOT USED for newer generation Infinity Touch systems. To connect these systems to the Internet, use the Wi-Fi version of the Infinity Touch wall controls.

Connect Power Source

A field--supplied 24VAC 40VA transformer is required to power the CAT--5 B--SAM. An accessory plug--in transformer is available to order through the Replacement Components group (part No. SYSTXNNXFM01).

The accessory plug--in transformer is heavy. Make sure it is secured to the power outlet with an appropriate screw through the base on the transformer.

NOTE: **Do NOT** connect the "D" communication bus wire (24VAC hot) from the Infinity system to the SAM. This may cause damage to the SAM, the Infinity system, or both.

Connect Network Cable *(Previous generation UID/UIZ systems, only)*

Connect a network cable (RJ45 terminated) from the Local Area Network (LAN). See Fig. 1 for cable attachment location.

System Start--Up

The Infinity system wall control will automatically find the CAT--5 B--SAM at system power on during the system self--installation sequence. If the SAM is being added to an existing system, initiate a full system re--install sequence to ensure that the SAM is discovered properly.

The wall control will enter the system installation screens automatically and will display the Equipment Summary screen when finished. *For previous generation UID/UIZ systems,* the Equipment Summary screen will display REMOTE ACCESS YES near the bottom. *For the newer Infinity Touch systems*, the word SAM will appear toward the bottom right of the Equipment Summary screen

If REMOTE ACCESS YES or SAM is not displayed on the Equipment Summary screen, or if "no sam" is displayed in the Infinity Touch Equipment Summary screen, check connections to the ABC wires as well as ensure the Yellow LED is lit on the CAT--5 B--SAM (this ensures the module has power). The Green LED will be lit next to each ABC connection if the User Interface has established communications.

NOTE: The Yellow Status LED may begin to flash status codes when used with *newer generation Infinity Touch systems*. This is likely due to the fact that the network interface within the SAM enclosure has been disconnected. The following status codes should be ignored when using the SAM with newer generation Infinity Touch controls:

> Code 61: Radio out of range

> Code 62: Loss of communication with radio or Ethernet device

> Code 63: Radio not registered

> Code 66: Ethernet/Wi-Fi not detected

> Code 67: No communication with server

Network Setup *(Previous generation UID/UIZ systems, only)*

After the Infinity system has learned the CAT--5 B--SAM, the homeowner's network parameters may be entered at the User Interface (wall control). If the homeowner's network router is setup for DHCP, then the CAT--5 B--SAM's network parameters cannot be changed. Enter the INSTALL/SERVICE menus on the User Interface with a 10 second press of the Advance button. Choose SETUP -> SAM SETUP. The SAM SETUP 1 and SAM SETUP 2 screens will appear. (See the sample screens toward the end of this document.)

MAC Address and Serial Number *(Previous generation UID/UIZ systems, only)*

The MAC Address and Serial Number of the CAT--5 B--SAM is used by the system owner to register their system with Carrier. Write down the MAC Address and CAT--5 B--SAM serial number in the home owner's guide. The serial number can be found on the CAT--5 B--SAM packaging, at the bottom of the large CAT--5 B--SAM circuit board, or in the User Interface INSTALL/SERVICE menus under SERVICE->MODEL/SERIAL NUMBERS selection. The MAC address can be found on a label on the wired module.

If the MAC Address is missing or unreadable, it can be found by entering the INSTALL/SERVICE menus of the User Interface (10 second press of the Advance button). The MAC Address will be listed on the SETUP-SAM SETUP->SAM SETUP1 screen. (See the sample screens toward the end of this document.)

Self-Test *(Previous generation UID/UIZ systems, only)*

The purpose of this test is to verify effective 2-way Internet communication.

Press and hold the TEST switch for at least 5 seconds. A flashing Yellow LED will indicate the test is in progress. A flashing Yellow and Green LED means the transmission is complete and the CAT-5 B-SAM is waiting for a reply. A constant Green LED means the test has passed. This test should be completed in just a few seconds.

If the Red LED is lit solid, then the CAT-5 B-SAM failed to send the message. Ensure that network connectivity is present and that the homeowner's Internet service is operating properly.

If the Yellow LED is lit solid, then the CAT-5 B-SAM sent its message but did not receive a reply. The Carrier server may be down. Retry at a later time.

Test aborting – There is no method to abort a test once it is started, other than to remove power.

The LEDs will maintain their state for one hour after the test. Pressing the Radio Test button momentarily will clear the LEDs. Pressing the Radio Test button again for five seconds will repeat the radio test.

Updating System Profile *(Previous generation UID/UIZ systems, only)*

The Infinity system will automatically send system information to Carrier's computer servers within one hour after the system has been successfully installed. Access to the system via the Internet will not be available until this occurs. The system can be forced to send its information through the following process if Internet access is required immediately. Press and hold the Radio Test button for 15 seconds. When the button is first pressed the Red LED will turn on. Five seconds into the press, the Yellow LED will turn on. Fifteen seconds into the press, the Green COM1 LED will turn on. Release the button when the Green LED turns on.

The Red LED will flash when messages are being sent. The Red and Yellow LEDs will flash when the CAT-5 B-SAM is waiting for message replies. Upon successful profiling, both Green LEDs will be lit. If profiling is not successful, the Red LED will be lit solid.

If the Infinity system ABC wiring is moved from connector 1 to connector 2 (or vice versa), or Infinity equipment has changed, the CAT-5 B-SAM must update Carrier's servers with the new information. This will happen automatically within one hour, or can be manually forced with the process described above.

Local PC Access *(Previous generation UID/UIZ systems, only)*

The Infinity system(s) can be monitored, and the CAT-5 B-SAM setup can be changed, through use of the CAT-5 B-SAM's embedded web server. From a PC on the same network as the CAT-5 B-SAM, type the IP address of the CAT-5 B-SAM in the address field of your web browser.

NOTE: *This feature is NOT available with the newer generation Infinity Touch systems.*

Account Setup *(Previous generation UID/UIZ systems, only)*

Setting up your Infinity Remote Access Account requires Internet access and should take just a few minutes of your time. Before logging on to the Internet site listed below, be sure to have the following information available:

1. CAT-5 B-SAM serial number and MAC address.
2. The name and contact information of person you want the system to contact if maintenance or service is required.
3. The name of the dealer you would like to perform Routine Maintenance and/or Emergency Service.
4. To setup your Remote Access Account, go to the following Internet address: www.MyInfinity.Carrier.com
5. At the welcome page, look for the text "New Users: Click Here".

TROUBLESHOOTING

FAULT INDICATORS – Under normal operation, the Yellow and Green LED will be on continuously (solid). If the CAT-5 B-SAM does not receive communications with the Infinity system, the green LED will not be on. If there are faults present, the yellow LED indicator will blink a two-digit status code. The first digit will blink at a fast rate, the second at a slow rate.

NOTE: *When the SAM is used with the newer Infinity Touch systems, it may display status codes that are unique to the previous generation UID/UIZ systems, but are irrelevant when the SAM is used with the newer Infinity Touch systems. These codes should be ignored. See below.*

STATUS CODE	DESCRIPTION	RESOLUTION
45	Board Failure	Replace CAT-5 B-SAM.
62	Loss of communication with Ethernet device	Ensure that cable between SAM circuit boards are seated properly. Replace CAT-5 B-SAM.
64	Auxiliary sensor active	Auxiliary sensor terminals are shorted by external device.
66	Ethernet network not detected	Make sure network parameters are correct in SAM setup screens.
67	No communication with server	Make sure router is connected to the Internet and network parameters are correct.

NOTE: *The 62, 66 and 67 status codes should be IGNORED for newer generation Infinity Touch systems.*

SAM SETUP 1	
AUX:	**AUX SENSOR**
IP TYPE:	DHCP
IP:	192.168.100.0
MAC ADDR:	
	00:01:02:03:04:05
SUBNET MASK:	
	255.255.255.000
SERVER	
STATUS:	CONNECTED
< BACK	NEXT >

SAM SETUP 2	
DEFAULT GATEWAY:	
	192.168.001.001
DNS SERVER:	
	061.010.231.015
PORT:	49152
SERVER	
STATUS:	CONNECTED
< BACK	NEXT >

AUX: *With previous generation UID/UIZ systems,* the auxiliary sensor can be renamed to something meaningful, such as WATER or GENERATOR. Use the Temp +/- buttons to move between letters, and the Time +/- button to choose letters. *For newer generation Infinity Touch systems*, this input is always labeled "SAM AUX SENSOR ALERT".

The following items are for use with the previous generation UID/UIZ systems, only:

IP TYPE: Choose DHCP (default) or STATIC for the Internet addressing type.

IP: Shows the current IP address of the CAT-5 B-SAM. If IP TYPE is STATIC then this item can be changed. Use the Temp +/- buttons to move between numbers, and the Time +/- button to choose numbers. If IP TYPE is DHCP, the IP address cannot change.

MAC ADDR: Shows the MAC Address of the CAT-5 B-SAM's network module.

SUBNET MASK: If the IP TYPE is STATIC, this can be changed to a different subnet number. Use the Temp +/- buttons to move between numbers, and the Time +/- button to choose numbers. If IP TYPE is DHCP, the SUBNET MASK cannot be changed.

DEFAULT GATEWAY: If the IP TYPE is STATIC, this can be changed to point to a different gateway. Use the Temp +/- buttons to move between numbers, and the Time +/- button to choose numbers. If IP TYPE is DHCP, the DEFAULT GATEWAY cannot be changed.

DNS SERVER: If the IP TYPE is STATIC, this can be changed to point to a different DNS server. Use the Temp +/- buttons to move between numbers, and the Time +/- button to choose numbers. If IP TYPE is DHCP, the DNS SERVER cannot be changed.

PORT: This can be changed to use a different port through the homeowner's network. The default is port 49152.

SERVER STATUS: Shows status of the CAT-5 B-SAM connection to Carrier's servers. If the screen shows NON CONNECTED, please check network settings or network cable.
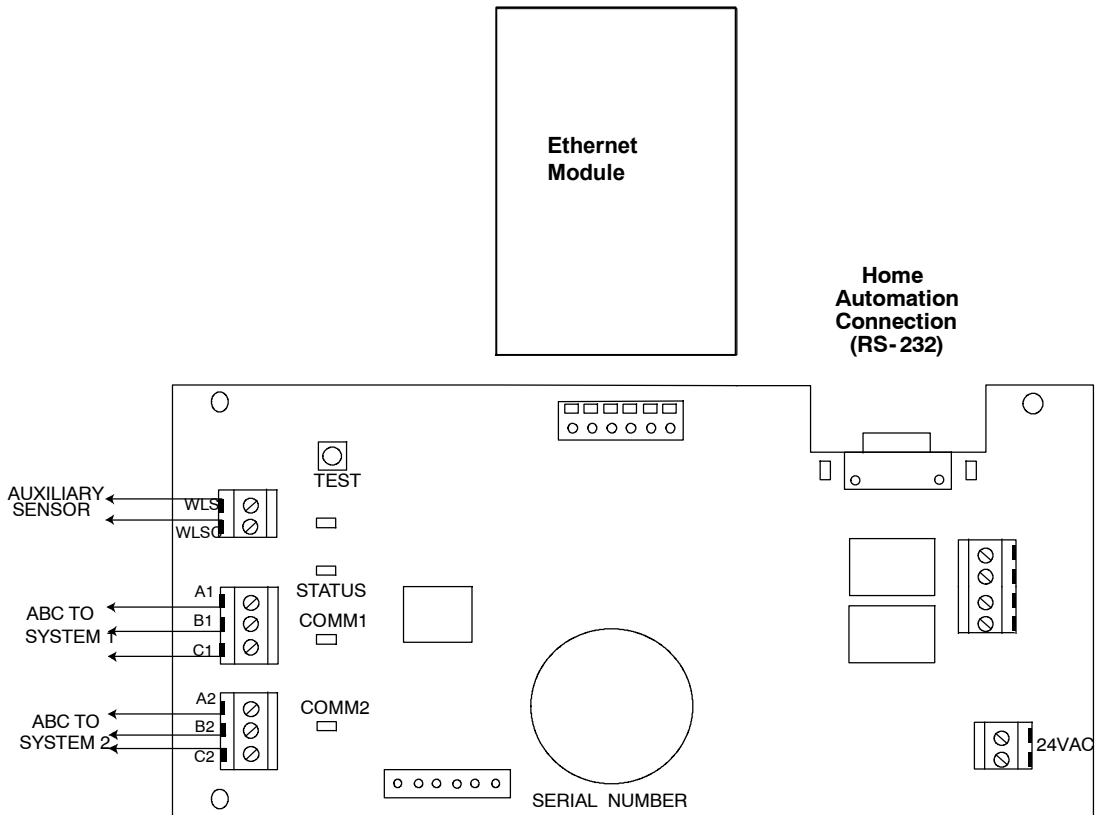

Fig. 1 – CAT-5 Module Control Board

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