OneHome™
Management and Control Solutions

Audio Integration Note

Manufacturer:	B & K
Model Number(s):	**CT310, CT600, CT610**
Comments:	
Document Revision Date:	5/2/2008

OVERVIEW AND SUPPORTED FEATURES

The following features are supported:

Traditional Whole-House Audio: The CT series can have keypads in each zone that control the volume and source. **NOTE:** The keypads can be mounted in double-gang electrical boxes, but they should be the large plastic variety: **THE KEYPADS DO NOT FIT WELL IN STANDARD METAL DOUBLE GANG BOXES.**

Support for IR: The CT has IR outputs that can provide signals to each of the sources, enabling transport control (Play, Pause, Stop, etc) for equipment that has IR control. B&K provides a keypad editor software that must be used to program the IR into the keypads.

Support for AM/FM Radio: The CT series include tuners, which are controllable from the AM/FM tuner interface on the **One**Home Viewer.

Support for Video: The CT series support both audio and video (composite only) to each zone.

NOTE: Due to reliability issues, the B&K CT Series Zone Controllers can not be used with Global Cache COM ports.

VIEWER INTERFACE FOR IR SOURCES

The interface shown on the Viewer for sources to a CT series depends on the source type.

For radio sources (AM/FM/XM), the **One**Home **AM/FM/XM** tuner interface is shown.

For digital media sources, the **One**Home **Music Library** interface is shown.

With **One**Home software **VERSION 3**, and optionally with **VERSION 4**, any other source that is controlled by IR from the CT series zone controller will appear in the Viewer interface represented by the B&K CK1.2 keypad.

In order to display the CK1.2 keypad properly, the **One**Home system must read the mxf design file. As a result:

IMPORTANT: You must copy the design file for the CK1.2 keypads file to the HomeBrick for the system to properly read and then display the CK1.2 keypads in the OneHome Viewer interface.


For consistency with the OneHome interface, you must also ensure that all CK1.2 keypads are programmed identically.

With **One**Home software **VERSION 4**, the source interface can be customized to match the device type, with built-in templates for many standard devices.

INSTALLATION OVERVIEW

1. During the rough-in phase, install speaker wire for the speakers and Cat5 cable for keypads, in each zone.

2. Also during the rough-in phase, run a Cat5 wire from the location of each CT zone controller back to the Network Assembly of the **One**Home system.

3. Mount the speakers and keypads in each zone, and install the CT and the sources.

4. Program the CT and the CK1.2 Keypads using the software provided by B&K. This includes setting the zones, the number of sources, the names for each source, and the IR codes for each source.

5. Test the entire CT zone controller system to ensure that all the sources play correctly in every zone, and that the keypad buttons behave correctly from the keypads.

6. Connect the **One**Home system to the CT controller electrically. See the wiring diagrams for more information. If the system includes multiple CT controllers, each CT is connected to the **One**Home system on its own COM port.

7. Configure the **OneHome** system for the CT and confirm communication between the CT zone controller and the **Home**Brick.

8. Test the system by changing sources in a zone to confirm the correct source plays, and by testing the **One**Home interface transport control and media server controls.

CONNECTION DIAGRAMS
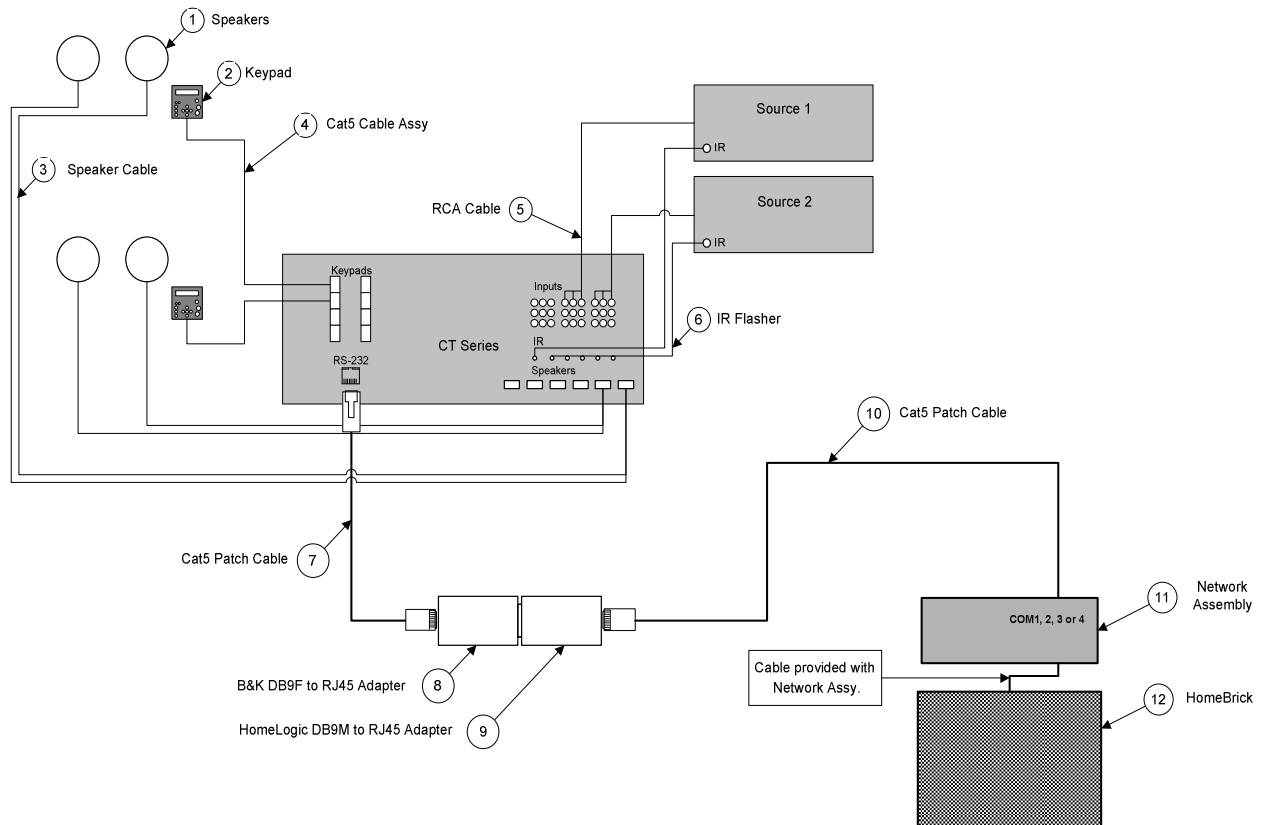
BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Speakers	Various		Analog	Wire	
2	Keypad	B&K	CK1.2	Serial	RJ45 Female / Terminal Strip	Use either the RJ45 or the terminal strip
3	Speaker Cable	N/A	N/A	Analog	Wire	
4	Cat5 Cable Assy.	Installer	N/A	Serial	RJ-45 Male / Wire X Wire	
5	RCA Cable	N/A	N/A	Analog	RCA X RCA	None included with B&K
6	IR Flasher	Various	N/A	IR	Mini Jack X IR Flasher	None included with B&K
7	Cat5 Patch Cable	Various	N/A	RS-232	RJ-45 Male X RJ-45 Male	Not included with B&K
8	B&K DB9F to RJ45 Adapter	B&K	13290	RS-232	DB-9 Female X RJ-45 Female	Included with B&K
9	HomeLogic DB9M to RJ45 Adapter	HomeLogic	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female	
10	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X Wire	
11	Network Assembly	HomeLogic	HW-NA-18X4	RS-232	RJ-45 Female X DB-9 Female / USB	
12	HomeBrick	HomeLogic	HW-HB-1080	RS-232	DB9 Male / USB	

B&K PROGRAMMING

Once the equipment is installed and connected you must program the CT according to B&K guidelines. Special steps that relate to HomeLogic are provided below:

PROGRAM THE CT USING BKcSUITE A/V SETUP

- Hit the **Advanced Full Setup** button
- On tab **2 Group/Code Sets/Zones**, set up the Zones
  - There are 6 Hardware Zones, **(A..F)**. Essentially, each hardware zone is an amplifier and speaker output.
  - There are 18 available Logical Zones, **(a..r)**. These can be defined as you wish. (Note Logical Zone 0 always controls all 6 Hardware Zones on the CT, e.g, Whole House.) The **One**Home system will read the CT Logical Zone configuration when the CT is installed using the Configurator.

    A Logical Zone can control any combination of Hardware Zones. Code Sets are the identifiers of Logical Zones. As an example, you could:
    - define CodeSet = 11, **Living Room**, to control hardware zone A amp / speakers.
    - define CodeSet = 12, **Dining Room**, to control zone B.
    - define CodeSet = 13, **Kitchen**, to control zone C.
    - define CodeSet = 15, **First Floor**, to control zone A, zone B, and Zone C, e.g., the Living Room, Dining Room, and Kitchen. So, selecting an audio source, play list, volume, etc. for **First Floor** will affect the **Living Room, Dining Room**, and **Kitchen**.

    The CodeSet for each defined Logical Zone must be unique. This also applies to zones defined on multiple CTs. E.g., you could use CodeSet= 11, 12, 13… on the first CT, and CodeSet= 21, 22, 23… on a second. (The one exception is that a CodeSet=0 will exist on every CT)

    The CT zone information is automatically read by the **One**Home system when the CT is installed. If the zone information is changed, it can be reloaded into the HomeBrick by hitting the CT controller's **Discover Devices** button in the HomeLogic Configurator.

- On tab **11 RS-232 Ports**
  - set Baud Rate to 9600. (CK1.2 Keypads require 9600)
  - Set Receive and Transmit IDs to zero. (**One**Home does not currently use Receive or Transmit IDs.)
  - Echo can be disabled.
  - RS-232 Feedback must be set to **Both**.
  - Convert IR can be disabled.
  - XMIT BKC_DIP should go to all zones, or at least all zones that are used or have Keypads.
  - BKC-DIP Transmit ID, set to Global (ALL)

- Tab **13 Keypad Feedback**, maps CK1.2 Keypad "Devices" to CT inputs. This must be configured if you use CK1.2 Keypads.
  - As an example, you might have a CD player connected to the CT on **IN 2**. You have programmed the Keypad interface for this CD player on to the keypad's **MAIN** button 6. So, on the Feedback tab, set the Keypad Device for **IN 2** to **6**.
  - The Keypad Transmit ID should be set to **255 (FFh)**.
  - Note that for the keypads to interact with each other correctly, the Devices must be in the same locations on all keypads connected to the CT. The **One**Home system expects that all keypads are programmed identically.

- Tab **9 Control**
    - o Typically a keypad will be wired to each hardware zone. If this is the case, leave **Flasher Outputs** set to the default **"Selected Input"**. When a keypad button is pushed, the IR will be sent only to the source currently selected for that zone.
    - o It is possible for the **One**Home system virtual CK12 keypad to function with all zones even if there is only one physical keypad connected to the system. In this case set **Flasher Outputs** to **"All Inputs"**. When a virtual keypad button is pushed from any zone, the IR will be sent to all 9 sources, regardless of which source is selected in the zone the keypad is wired to. This works as long as the sources do not have IR codes in common.

THE KEYPAD DESIGN FILE

To properly display the keypad on the Viewer interface, the OneHome system needs to know the details of the keypad design. This is accomplished by saving the keypad design file (the mxf file) on the **Home**Brick.

The following steps explain this process in more detail:

1. Open File Explorer on a computer that is connected to the same network that has the **Home**Brick.

2. Browse to the **Home**Brick: type **hlgateway** in the Explorer address line and hit **Enter**.

3. Browse into the **C:\FILES** folder on the **Home**Brick.

4. Create a new folder in **C:\FILES** called **B&K**.

5. Save the keypad program file as **CK12Config.mxf** in the B&K folder you made above.

BUILT-IN TUNERS

A CT Tuner source will be automatically installed when the CT Zone Controller is installed. Make sure that a CT AM/FM Tuner appears in the list of tuners and that the CT Tuner has been assigned to Source 10.

Although the CT310 and CT610 include two built-in tuners, the B&K RS-232 command set only supports the control of Tuner 1. The CT600 includes one built-in tuner.

MULTIPLE B&K UNITS

If you need more than 6 zones, you can add additional B&K units: the maximum number of B&K units is 6, which delivers audio in up to 36 zones. Each B&K unit requires its own COM port interface to the **One**Home system.

HOMELOGIC CONFIGURATION DETAILS

The following table provides settings used in the HomeLogic Configurator when connecting to a B&K system. Please refer to the Configurator Reference Guide for more details.

In the table below:

- "<Select>"   Select the appropriate item from the list (or drop-down) in the Configurator.
- "<User Defined>", etc.   Type in the desired name for the item.

Devices	Variable Name	Setting	Comments
Communication Devices	Name	<User Defined> (Default: **B&K Components Network**)	
	Type	**Serial Port**	
	Communication Type	**B&K Components Network**	
	Location	<User Defined> (Not Required)	
	Com Port	<Select>	
Audio Tuners (See Note 1)	Name	<User Defined>(Default: **B&K CT Series Tuner**)	
	Device Type	<Select> (Default: **B&K CT Series Tuner**)	
	Location	<User Defined> (Not Required)	
	Comm Device	<Select> (Default: **B&K Components Network**)	
Other Audio Devices	Name	<User Defined>(Default: **B&K CK1.2 Keypad**)	
	Device Type	(Default: **B&K CK1.2 Keypad**)	
	Location	<User Defined> (Not Required)	
Audio Zone Controllers	Name	<User Defined> (Default: **B&K CT Series**)	
	Device Type	**B&K CT Series**	
	Location	<User Defined> (Not Required)	
	Comm Device	<Select> (Default: **B&K Components Network**)	
Sources	Name	<User Defined>	
	Source Device	<Select> (See Note 2)	
	Source Volume	<Select> (See Note 3)	
	Show Source	<Select>	
Zones	Name	<User Defined>	
	Show Zone	<Select>	

Notes:

1. The tuners are built into the B&K Units: the CT310/610 includes 2 tuners, and the CT600 includes 1 tuner.
2. For IR controlled systems, select "Other", either a BK CK1.2 Keypad or an AV Interface
3. For systems with devices that have controllable volume (such as an AudioTron), select the desired volume (normally 100%).

COMMON MISTAKES

1. Improper programming of the B&K system. Make sure you complete programming of the equipment, and that it functions properly as a stand-alone system, before attempting to connect and control from the **One**Home system.

2. If some zones do not seem to be controlled properly by the **One**Home system, it may be that communications between the CT and the HomeBrick were not functioning when the CT controller was installed, and the zone configuration was not read from the CT. In the HomeLogic Configurator, hit the CT Zone Controller's "Discover Devices" button to reload the zone information from the CT.