

"HOMECONTROL" AUTOMATION KIT

MKHOME1

GENERAL DESCRIPTION

The purpose of automation is to help make our lives easier and less complex by performing some of the more repetitive tasks that we do day-in and day-out. Naturally each task must be examined for its value and a determination made as to when or under what conditions one would want to automate the task.

HomeControl (MKHOME1) was developed as an easy to install automation controller kit communicating with the data bus of a Caddx "NX" Security Control. The equipment included with HomeControl is factory pre-programmed so that it works out of the box. The factory pre-programming focuses on the interaction of the security system operation to automate tasks associated with its operation. Existing security sensors along with the control's arming status are utilized to trigger true automation operations such as setback of heating, cooling, and lighting subsystems when the building is not occupied, voice annunciation of key events, plus the added safety and security deterrent that automatic lighting can provide during the crucial moments of exiting and entry.

The HomeControl Kit includes a Magic Module Controller (MM443), 32 Channel Recordable Voice Annunciator (MV120), Caddx Link Interface (ML8), Two-Way X-10 Transceiver (PSC05) with cord, and ECHO Speaker (ELK-73). By connecting this to a Caddx NX8, NX6, or NX4 Security Control and some X-10 modules, it's possible to have a powerful lighting control and voice messaging automation system up and running in less than one hour. Energy savings are but a short step away with the addition of an electric Water Heater controller such as the ELK-9100, or an HVAC Setback Thermostat such as the Enerzone 300X1. Many of the automation functions are controlled by time and day utilizing the clock/calendar from the NX Security Control.

The Magic Module communicates with the NX Security Control via the Link Interface. There are 16 event conditions from the control which are monitored by the Magic Module. These events are assigned to perform one or more of the following: 1) Transmit X-10 commands, 2) Activate one of 6 scene macros, 3) Activate 1 of 4 onboard relays, 4) Announce a message from any of the 32 recordable channels.

Although the kit is pre-programmed and ready to install, changes can be made with "push-button" ease from a Windows 95/98 PC using our new "Application Writer" software included in the ELK-MK485 Programming Kit (sold separately).

INSTALLATION

1. Mount the Link Interface Card in the NX cabinet and connect it to the keypad input (3 wires: Red, Green, and Black). See Figure 1 Hookup Diagram. This will centrally power all HomeControl components from the NX Control. If you prefer (or need) to power HomeControl from another source, leave off the Red +V wire from the keypad input to the ML8 and connect another DC power source to the +12V and Neg terminals of the Magic Module. Magic Module also has a power receptacle **J3** which accepts a plug-in 12Vdc (center pin positive) power supply such as the ELK-P1216 (sold separately).
2. Mount the Magic Module and Voice Annunciator and connect them to the ML8 using four (4) wires (Red, Green, White, and Black).
3. Mount the ECHO Speaker near the entry/exit keypad and connect it to the Voice Annunciator speaker terminals using two (2) wires.
4. Connect the four (4) wire modular telephone cord from the Magic Module J5 to the X-10 Transceiver Module (PSC05).

NOTE: You need 1 or more X-10 or Leviton brand powerline modules (Lamp or Appliance type) in order to utilize the lighting/energy savings modes programmed in HomeControl.

Congratulations, your HomeControl automation kit is now ready for test and demonstration.

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OPERATION OVERVIEW

To understand the automation processes of HomeControl it is necessary to know the parameters and conditions it uses to “Cause” each action, along with the “Effects” of each action. The following text and diagrams explain HomeControl in detail.

FACTORY PRE-PROGRAMMED PARAMETERS

HomeControl is programmed to monitor the following sixteen (16) events (conditions) from the NX Control. When an event first occurs it is said to be “activated”. When that event resets it is said to be “deactivated.”

Activated	Deactivated	Activated	Deactivated
1. Armed	Disarmed	9. Zone 1 Fault	Zone 1 Restored
2. Armed (Home Mode)	Away Mode	10. Zone 2 Fault	Zone 2 Restored
3. Chime Mode On	Chime Mode Off	11. Zone 3 Fault	Zone 3 Restored
4. Entry Delay Active	Expired	12. Zone 4 Fault	Zone 4 Restored
5. Exit Delay Warning	End	13. Zone 5 Fault	Zone 5 Restored
6. Alarm Active	Silenced	14. Zone 6 Fault	Zone 6 Restored
7. AC Failure	Restored	15. Zone 7 Fault	Zone 7 Restored
8. Error Beep (3 beep)	End	16. Zone 8 Fault	Zone 8 Restored

X-10 House and Unit codes are pre-assigned to correspond to areas of a typical home. These are transmitted in response to the activated/deactivated events described above. For example: HomeControl transmits a C1 ON during arming or entry delay activation. If you want lights to be turned on, connect them to X-10 modules programmed to C1.

House Unit Code	Code	Assignment	House Unit Code	Code	Assignment
C	1	Main Entry Light	C	9	Nightlight(s)
C	2	Hall Light(s)	C	10	Bathroom Light(s)
C	3	Living Room Light(s)	C	11	Other (User Defined) Light(s)
C	4	Dining Room Light(s)	C	12	Other (User Defined) Light(s)
C	5	Family Room Light(s)	C	13	Walkway Light(s)
C	6	Kitchen Light(s)	C	14	Porch Light(s)
C	7	Master Bedroom Light(s)	C	15	Flood Light(s)
C	8	Bedroom 2 Light(s)	C	16	Heavy Duty Module for Electric Water Heater

The thirty-two (32) recordable channels in the Voice Annunciator have been pre-recorded with the following vocabulary. HomeControl can play single words or multiple words in order to form sentence structures.

1 Alarm	11 Main Entry	22 Downstairs
2 Activated	12 Hallway	23 Basement
3 System is Armed	13 Living Room	24 Garage
4 Not Secure	14 Family Room	25 Door
5 Exit Expires in 10 Seconds	15 Dining Room	26 Window
6 Please Enter Your Code To Disarm	16 Kitchen	27 Front
7 Then Call The Monitoring Station	17 Master Bedroom	28 Back
8 Exit Immediately	18 Bedroom 2	29 Side
9 AC Power Loss	19 Bedroom 3	30 Sliding
10 Energy Savings Features	20 Bedroom 4	31 Motion Detector
	21 Upstairs	32 Glassbreak Detector

The four (4) hardwire inputs on the Magic Module are not assigned in the factory default programming.

The four (4) dry contact relay outputs on the Magic Module are assigned for use as:

- 1 Control of a high voltage electrically actuated water heater contactor. (Not needed if using an X-10 water heater module)
- 2 Control of an HVAC setback thermostat.
- 3 [available]
- 4 Optional control of the speaker(s) wires to the Voice Annunciator for selective muting of voice messages.

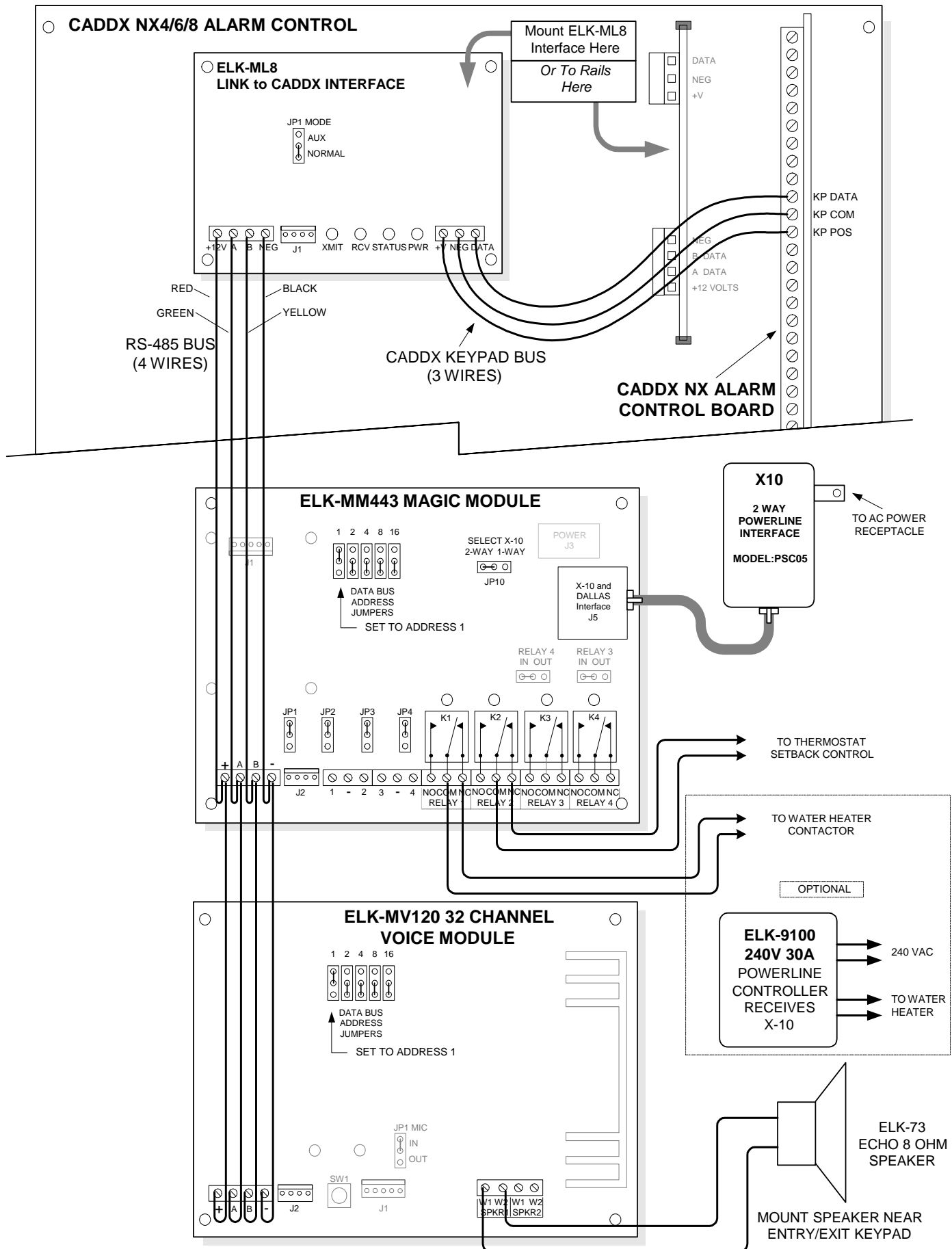


Figure 1: HomeControl Hookup Diagram

"HomeControl" (MKHOME1) Default Programming for Event Cause and Effects

Events received from NX8 Security Control	NX8 Zone No.	Name assigned to Zone	Powerline Carrier (X-10) Code Transmissions (House and Unit Code)	Relay1 Water Heater	Relay2 HVAC Setback	Relay 3	Relay 4	Scene	Voice Message when event occurs	Voice Message when arming with a zone fault	Voice Message during an alarm	Voice Message at disarm after alarm
Common & Normally Closed contacts												
Armed Away	n/a	n/a	C1 Timed ON for 30 seconds - C16 (Water Heater) Off	Open	Open	-	-	3	Energy saving features activated	-	-	-
Disarmed	n/a	n/a	C16 (Water Heater) On	Closed	Closed	-	-	5	-	-	-	-
Armed Home	n/a	n/a	C16 (Water Heater) On	Closed	Closed	-	Open	5	-	-	-	-
Disarmed	n/a	n/a	-	-	-	-	Closed	-	-	-	-	-
Chime Mode On	n/a	n/a	-	-	-	-	Open	-	-	-	-	-
Off	n/a	n/a	-	-	-	-	Closed	-	-	-	-	-
Entry Delay Active	n/a	n/a	C1 Timed ON for 30 seconds	-	-	-	-	-	System is armed - Please enter your code to disarm	-	-	-
Expired	n/a	n/a	-	-	-	-	-	-	-	-	-	-
Exit Delay Warning	n/a	n/a	-	-	-	-	-	-	Exit expires in 10 seconds	-	-	-
Expired	n/a	n/a	-	-	-	-	-	-	-	-	-	-
Alarm Active	n/a	n/a	C all lights ON, all lights OFF at approximately 2 sec. rate	-	-	-	Closed	-	Alarm activated - Please enter your code to disarm - Then call the monitoring station	-	-	-
Disarmed	n/a	n/a	-	-	-	-	-	-	-	-	-	-
AC Failure	n/a	n/a	-	-	-	-	-	-	AC power loss	-	-	-
Restored	n/a	n/a	-	-	-	-	-	-	-	-	-	-
Error Beep (see note 1 below)			-	-	-	-	-	-	-	-	-	-
Zone 1 Faulted	1	Main Entry	C1 Timed ON for 30 seconds	-	-	-	-	-	-	Main Entry not secure	Alarm - Main Entry	Alarm activated - Main Entry
Restored			-	-	-	-	-	-	-	-	-	-
Zone 2 Faulted	2	Hallway	C2 Timed ON for 30 seconds	-	-	-	-	-	-	Hallway not secure	Alarm - Hallway	Alarm activated - Hallway
Restored			-	-	-	-	-	-	-	-	-	-
Zone 3 Faulted	3	Living Room	C3 Timed ON for 30 seconds	-	-	-	-	-	-	Living Room not secure	Alarm - Living Room	Alarm activated - Living Room
Restored			-	-	-	-	-	-	-	-	-	-
Zone 4 Faulted	4	Dining Room	C4 Timed ON for 30 seconds	-	-	-	-	-	-	Dining Room not secure	Alarm - Dining Room	Alarm activated - Dining Room
Restored			-	-	-	-	-	-	-	-	-	-
Zone 5 Faulted	5	Family Room	C5 Timed ON for 30 seconds	-	-	-	-	-	-	Family Room not secure	Alarm - Family Room	Alarm activated - Family Room
Restored			-	-	-	-	-	-	-	-	-	-
Zone 6 Faulted	6	Kitchen	C6 Timed ON for 30 seconds	-	-	-	-	-	-	Kitchen not secure	Alarm - Kitchen	Alarm activated - Kitchen
Restored			-	-	-	-	-	-	-	-	-	-
Zone 7 Faulted	7	Master Bedroom	C7 Timed ON for 30 seconds	-	-	-	-	-	-	Master Bedroom not secure	Alarm - Master Bedroom	Alarm activated - Master Bedroom
Restored			-	-	-	-	-	-	-	-	-	-
Zone 8 Faulted	8	Bedroom 2	C8 Timed ON for 30 seconds	-	-	-	-	-	-	Bedroom 2 not secure	Alarm - Bedroom Two	Alarm activated - Bedroom Two
Restored			-	-	-	-	-	-	-	-	-	-

Note1: The purpose of the error beep event is to instruct Magic Module to scan the zones for possible faults.

[0800 24021130]

"HomeControl" (MKHOME1) Default Programming for Scenes

Scenes are like macros. Multiple X10 Devices, Magic Module Relays, and Magic Voice Messages may be triggered by simply activating any one of the 6 scenes. A scene may be activated at a specific time and day of the week via 2 different schedules (A or B), by any of the 16 NX received events, or by any of the 4 Magic Module inputs. It is important to understand that scenes are one-way (activate only) actions. Scenes can be activated, but they cannot be turned on or off. Therefore, a second scene is required to reverse or change the state of a light or group of lights controlled by a previous scene. For example: at 5:30am Mon-Fri the pre-dawn scene (1) will be activated and the Mstr Bdrm light (C7) will be turned on. This light will be turned off by the Day/Away scene when the alarm system is armed. By the same token, this light or a group of lights may also be controlled by an NX event, a Magic Module input, or by another X-10 controller.

		Powerline Carrier (X-10) Signal Transmissions HOUSE CODE=C																			
No.	Name	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	Relay1	Relay2	Relay3	Relay4
		Main Entry Light	Hall Lights	Living Room Lights	Dining Room Lights	Family Room Lights	Kitchn Lights	Mstr Bdrm Lights	Bdrm 2 Lights	Night Light	Bathrm Lights	Other Lights	Other Lights	Walk Way Lights	Porch Lights	Flood Lights	X10 Water Heater	Water Heater	HVAC		
																		Common & N/C contacts			
1	Pre-Dawn	-	-	-	-	-	-	ON	-	-	ON	ON	OFF	-	-	-	ON	Closed	Closed		
2	Dawn	-	-	-	ON	-	ON	-	-	OFF	-	OFF	ON	-	ON	-	-				
3	Day/Away	-	-	-	OFF	-	OFF	OFF	-	-	OFF	OFF	OFF	-	OFF	-	OFF	Open	Open		
4	Dusk	ON	-	-	-	ON	ON	-	AC power loss	ON	-	ON	OFF	ON	ON	ON	-				
5	Home	-	ON	ON	-	ON	ON	-	-	-	-	OFF	ON	-	-	-	ON	Closed	Closed		
6	Bedtime	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	-	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Open	Open		

Note: Water heater may be controlled either by an X10 powerline type device ie: ELK-9100 or by an electrical isolation contactor triggered from Relay 1.

	SCENE	Schedule A Scene Activation by Time of Day								Schedule B Scene Activation by Time of Day							
		Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time 24hr	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time 24hr
1	Pre-Dawn	-	Yes	Yes	Yes	Yes	Yes	-	5:30a	Yes	-	-	-	-	-	Yes	6:30a
2	Dawn	-	Yes	Yes	Yes	Yes	Yes	-	7:00a	Yes	-	-	-	-	-	Yes	8:00a
3	Day/Away	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Dusk	Yes	Yes	Yes	Yes	Yes	Yes	Yes	17:30p		-	-	-	-	-	-	5:30p
5	Home	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
6	Bedtime	-	Yes	Yes	Yes	Yes	Yes	-	23:00p	Yes	-	-	-	-	-	Yes	00:30a

Note: The purpose of Schedules A & B are to allow each scene to be activated at different times on different days.

[0800 23021140]