

Model 8R5PX Programmable X10 Relay Controller

Programming Manual

The 8R5PX is controlled by standard X10 Unit Code On and Off commands (such as A1 ON) to turn the relays on or off. The unit comes pre-programmed as a Latched relay controller. A versatile programming mode allows you to set the relays X10 House Code and Unit Code address. You can also change the relay operating mode to two types of pulse outputs with adjustable pulse times. The relays can be programmed as a **Group** or **Individually** set to their own configuration.

Pre-Programmed Mode

The 8P5RX comes pre-programmed as 8 **latched** relays set to **X10 House Code A** and relay channels 1-8 set to **X10 Unit Codes 1-8**. No user programming is required to operate the 8R5PX in this configuration. Power up and GO!

X10 Operation.

The Relay Channels are mapped to X10 Unit Codes. The pre-programmed Latched Mode is a group mode and all relays have the same House Code address. Unit codes are assigned in sequential order.

The table below shows the default relay channel functions. The Unit Code starting address can be changed with a programming command, as can the relay operating mode. You can change them all as a group or individually set each relay configurations House Code, Unit Code and relay mode. These options are defined in the Programming Mode section.

Pre-programmed Latched Mode Relay Channel Operation Table

8R5PX Relay Channel	X10 House Code	X10 Unit Code	Relay State Off Command	Relay State On Command
1	A	1	Off	On
2	A	2	Off	On
3	A	3	Off	On
4	A	4	Off	On
5	A	5	Off	On
6	A	6	Off	On
7	A	7	Off	On
8	A	8	Off	On

Other X10 Commands

All Units Off. The 8P5RX responds to the X10 command "All Units Off" to set all relay channels to Off. It does **not** respond to "All Lights On" or any other X10 commands in the operating mode.

X10 String Commands. The 8R5PX supports a string of X10 addresses followed by an On or Off command. Ex: A1 A2 A3 ON. Note: All addresses in a string must be the same House Code.

Programmable Options

The 8P5RX can be programmed to set its X10 address, relay channel assignment and relay mode. In the programming mode, the following settings can be programmed:

Programmable setup options:

- Set X10 House Code address: A to P
- Set X10 Unit Code to Relay Channel address assignment: typically groups 1 to 8 or 9 to 16
- Set Relay Operating Mode:
 - Latched: On command = relay On, Off command = relay Off
 - Momentary: On command = pulse output , Off command = relay Off
 - Pulse: On command = pulse output , Off command = pulse output
- Set relay pulse output time: 1 to 4 seconds (default is 1 sec)

Programming Modes: There are two modes of programming:

- **Group Mode:** All relays set to the same house code and relay mode. Sequential assignment of unit codes to relay channels.
- **Individual Mode:** Each relay can be set to a unique House code, Unit code and relay mode.

Example Momentary Mode Relay Channel Operation Table (Group programmed with A1)

8R5PX Relay Channel	X10 House Code	X10 Unit Code	Relay State Off Command	Relay State On Command
1	A	1	Off	Pulse 1 Sec
2	A	2	Off	Pulse 1 Sec
3	A	3	Off	Pulse 1 Sec
4	A	4	Off	Pulse 1 Sec
5	A	5	Off	Pulse 1 Sec
6	A	6	Off	Pulse 1 Sec
7	A	7	Off	Pulse 1 Sec
8	A	8	Off	Pulse 1 Sec

Example Pulsed Mode Relay Channel Operation Table (Group programmed with A9)

8R5PX Relay Channel	X10 House Code	X10 Unit Code	Relay State Off Command	Relay State On Command
1	A	9	Pulsed 1 Sec	Pulse 1 Sec
2	A	10	Pulsed 1 Sec	Pulse 1 Sec
3	A	11	Pulsed 1 Sec	Pulse 1 Sec
4	A	12	Pulsed 1 Sec	Pulse 1 Sec
5	A	13	Pulsed 1 Sec	Pulse 1 Sec
6	A	14	Pulsed 1 Sec	Pulse 1 Sec
7	A	15	Pulsed 1 Sec	Pulse 1 Sec
8	A	16	Pulsed 1 Sec	Pulse 1 Sec

Programming the 8R5PX

You can set or change the 8R5PX X10 House Code address, X10 Unit Code range or relay mode, by setting the device into the **programming mode** and sending specific X10 commands.

BEFORE YOU START! READ THIS:

1. Before placing the 8R5PX in the programming mode, disconnect any live relay loads from the unit. The relays and their status LEDs are turned on/off during programming as a visual indicator of which relay channel you are programming.
2. Unplug any X10 devices which automatically send X10 commands or execute X10 macros. You do not want unintended commands sent to the 8R5PX while in programming mode.

Sending Programming Commands to the 8R5PX.

X10 Transmitter

To program the 8R5PX you will need some device or system that can send X10 commands to the unit. The device needs to be able to send the following X10 commands.

House Codes, A-P
Unit Codes 1-16
All Lights On
All Units Off
Bright
Dim

Recommended devices include the X10 Mini-Controller, X10 Maxi-controller, RCS Commstar and Stargate control units with WinEVM/Mega-controller software running on a PC. Other X10 compatible devices, systems and programs can be used, if they allow these specific X10 commands to be sent manually.

Setting the Unit into Programming Mode

Enter Programming Mode

Press the **Program Mode** button on the relay controller board until the Status LED starts flashing fast, then release the button. Channel 1 relay LED will come on, and the Status LED will be flashing fast indicating the unit is in the programming mode and waiting for a programming command.

Exit Programming Mode

The 8R5PX will stay in programming mode until you exit it by pressing the **Program Mode** button again after completing the programming command sequence or 4 minutes of no activity passes.

Advancing Relay Channels in Individual Programming Mode

Pressing the **Program Mode** button after a channel command string is sent will advance the programming to the next channel. The relay LED for the channel in programming mode will be ON. Pressing and holding down the **Program Mode** button will “go back” one channel to allow you to change the previous channel’s programming.

You can skip a channel or channels in the Individual Programming mode by pressing the **Program Mode** button without sending an X10 command and the channel’s current setup will be retained.

All programming changes are permanently stored and retaining during power cycles.

QUICK PROGRAMMING EXAMPLES

These quick programming examples show how to change the basic default settings. These are examples of “Group Mode” commands that set the same House Code and relay operating mode to all channels.

Setting a new X10 House Code

You can set the 8R5PX to any X10 House Code, A to P.

Example: set House Code to B

1. Press and hold **Program Mode** button to enter programming mode
2. Send “**B1 ON**”
3. Press **Program Mode** button to exit programming mode

The 8PRX is now set to House Code B. The default Unit Code group assignment of 1-8 and Latched operating mode remains unchanged. Substitute any desired House Code, A to P for B in this example.

Setting the Unit Code Group 1 to 8 or 9 to 16

In group programming mode, the 8 relay channels (1-8) are mapped to X10 Units Codes in sequential order starting with the programming Unit Code sent. Typically this would be 1 for Unit Codes 1 to 8 or 9 for Unit Codes 9 to 16.

Example: set Unit Code group to 9 -16

1. Press **Program Mode** button to enter programming mode.
2. Send “**A9 ON**”
3. Press **Program Mode** button to exit programming mode.

The 8PRX is now set to unit code group 9 -16 and the relay channels are mapped 1(unit code 9) to 8 (unit code16). The default House Code A and Latched operating mode remains unchanged.

Changing the Latched Relay Operating Mode to Pulse or Momentary

Example: set operating mode to Pulse mode

1. Press **Program Mode** button to enter programming mode.
2. Send “**A1 ON**” followed by “**All Lights ON**”
3. Press **Program Mode** button to exit programming mode.

The 8PRX is now set to Pulse relay mode. The House Code and Unit Code group remains unchanged.

Example: set operating mode to Momentary mode

1. Press **Program Mode** button to enter programming mode.
2. Send “**A1 ON**” followed by “**All Units OFF**”
3. Press **Program Mode** button to exit programming mode.

The 8PRX is now set to Momentary relay mode. The House Code A and Unit Code group remains unchanged.

Group Programming Mode

Group programming mode sets all relay channels to the same House Code address and/or output mode. The relay Unit Code addresses will be a sequential series starting with the Unit Code sent. (Typically 1)

Note: remove live loads from the relay channels before you begin programming, as the relays and their LEDs will be turned ON in sequence to visually indicate which relay channel is being programmed. Stop all automatic X10 transmissions from any controllers on the powerline.

Enter the programming mode by pressing and holding the **Program Mode** button on the 8R5PX PCB until the status LED starts flashing rapidly and relay channel 1 LED comes ON.

>> **Status LED is flashing rapidly to indicate Programming Mode**

The basic **Group Programming Mode** command is "**House Code, Unit Code, ON**". It sets the group House Code, Unit Code group and enters Group programming mode. The default relay mode is Latched.

In the following commands, change A to your desired House Code. Change 1 to the desired Unit Code group starting address.

Set group House Code/Unit Code. Send "**A1 ON**" command.

>> **Status LED has a long flash to indicate Programming Latched Mode state.**

Set group relay mode:

Latched mode: default relay mode OK? Press the **Program Mode** button to exit programming mode.

or

Set Momentary mode: Send "**All Units Off**" command

or

Set Pulsed mode: Send "**All Lights ON**" command

>> **Status LED has a long flash followed by one short flash to indicate Programming Pulsed Mode –one second.**

Set group pulse length: (if Momentary or Pulse selected above)

1 sec default OK? Press the **Program Mode** button to exit programming mode.

or

Set 2 sec: Send one "**Bright**" command

>> **Status LED has a long flash followed by two short flashes to indicate Programming Pulsed Mode – 2 second pulse.**

or

Set 3 sec: Send two "**Bright**" commands

>> **Status LED has a long flash followed by three short flashes to indicate Programming Pulsed Mode – 3 second pulse**

or

Set 4 sec: Send three "**Bright**" commands

>> **Status LED has a long flash followed by four short flashes to indicate Programming Pulsed Mode – 4 seconds.**

NOTE: Use the "Dim" command to decrease the pulse length. Pulse time is reduced by 1 sec for each dim command sent.

Group Programming Completed: Press **Program Mode** button to exit programming mode and return to operating mode.

Restore Default Mode of Operation.

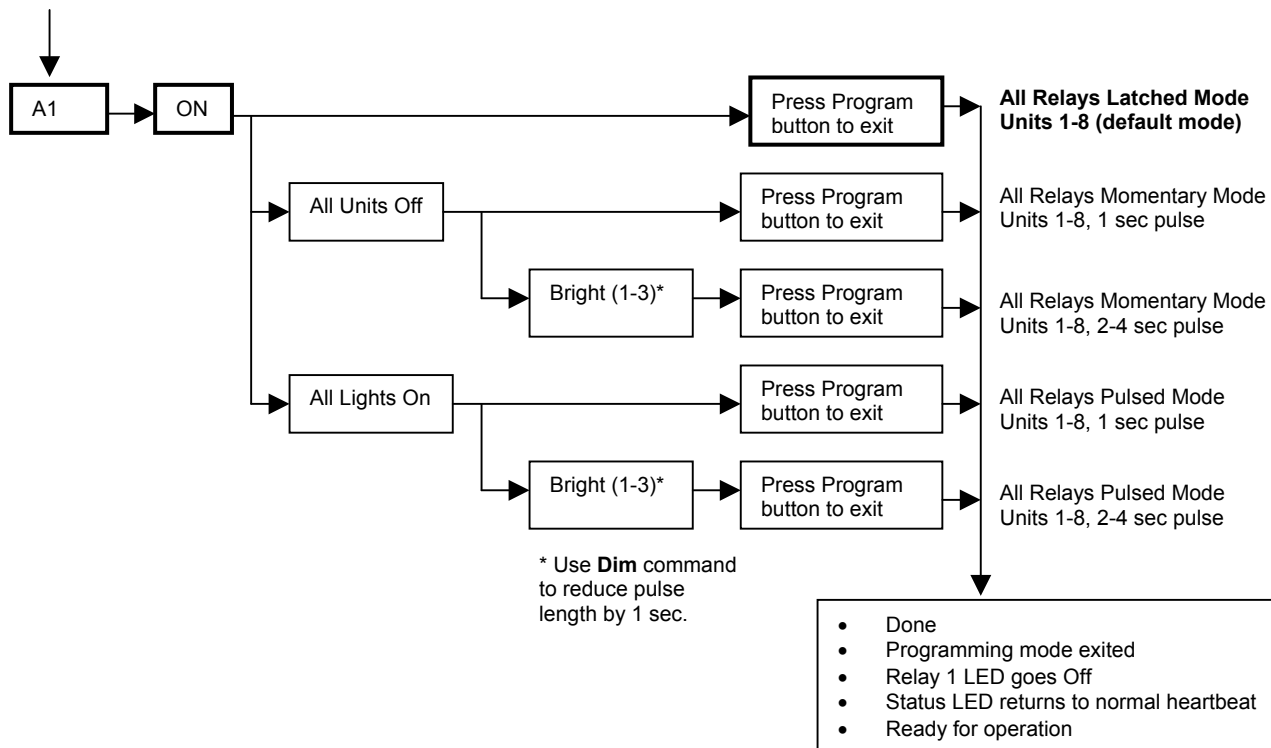
- Press Program Button and hold to enter programming mode.
- Send "A1 ON" command and exit programming.

This is the default operating mode of all 8 relays in latched mode, set to House Code A, Unit codes 1 to 8.

Group Programming Sequence Diagram

X10 Command Programming Sequence	Desired Group Function
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- Press Program Button and hold to enter programming mode.
- Status LED is flashing rapidly. Relay Channel 1 LED is ON.
- Send the following X10 commands to program desired function.
- Substitute desired House Code A-P for A
- Substitute desired starting unit code for 1



Restore Default Mode of Operation.

- Press Program Button and hold to enter programming mode.
- Send "A1 ON" command and exit programming.

This is the default operating mode of all 8 relays in latched mode, set to House Code A, Unit codes 1 to 8.

Individual Relay Programming Mode

Individual programming mode allows each relay channel to be set to a specific House Code, Unit code address and relay operating mode.

Relays can all be different or all the same. By setting several relays to the same address, you can create multiple pole relays. For instance, you could set 2 relays to the same address and create a DPDT relay and make a 4 channel DPDT unit or 4 relays to the same address and make a 2 channel 4PDT unit, or even one 8PDT unit.

Reminder: remove live loads from the relay channels before you begin programming, as the relays and their LEDs will be turned ON in sequence to visually indicate which relay channel is being programmed. Stop all automatic X10 transmissions from any controllers on the powerline.

Programming Individual Relays

Enter the programming mode by pressing and holding the **Program Mode** button on the 8R5PX PCB until the status LED starts flashing rapidly and Relay Channel 1 LED is on.

Each relay channel will be programmed in sequence starting with Relay Channel 1. Determine the X10 command sequence that you need to send to the unit to program the selected Relay Channel to the desired configuration. Send the commands.

Advance, Skip or Go Back

When the channel programming is completed, press the **Program Mode** button on the relay board to advance to the next Relay Channel. You may also skip programming the next channel by pressing the **Program Mode** button again to advance or you can “go back” to the previous channel by pressing and holding the **Program Mode** button.

Continue programming until all 8 relay channels have been programmed or skipped. When you press the **Program Mode** button after Relay Channel 8, you will exit programming mode and return to operational mode.

The basic **Individual Programming Mode** command is “**House Code, Unit Code, OFF**”. It sets the House Code, Channel Unit Code and enters Individual programming mode. The default relay mode is Latched.

*In the following commands, **change A** to your desired House Code and **change 1** to the desired Unit Code address.*

Set group House Code/Unit Code. Send “**A1 OFF**” command.

>> **Status LED has a long flash to indicate Programming Latched Mode state.**

Set group relay mode:

Latched Mode: Default relay mode OK? Press the **Program Mode** button to exit programming mode.
or

Set Momentary Mode: Send “**All Units Off**” command
or

Set Pulsed Mode: Send “**All Lights ON**” command

>> **Status LED has a long flash followed by one short flash to indicate Programming Pulsed Mode –one second.**

Set group pulse length: (if Momentary or Pulse selected above)

1 sec default OK? Press the **Program Mode** button to exit programming mode.
or

Set 2 sec: Send one “**Bright**” command

>> Status LED has a long flash followed by two short flashes to indicate Programming Pulsed Mode – 2 second pulse.

Set 3 sec: Send two “**Bright**” commands

>> Status LED has a long flash followed by three short flashes to indicate Programming Pulsed Mode – 3 second pulse

Set 4 sec: Send three “**Bright**” commands

>> Status LED has a long flash followed by four short flashes to indicate Programming Pulsed Mode – 4 seconds.

NOTE: Use the “**Dim**” command to decrease the pulse length. Pulse time is reduced by 1 sec for each dim command sent.

Advancing to the next Relay Channel programming: Press the **Program Mode** button to advance to next channel and complete it’s programming. If you have completed Relay Channel 8, pressing the **Program Mode** button will exit programming mode and return the unit to operating mode.

When you advance to the next Relay Channel to program, you stay in Individual programming mode by continuing to sending the “**House Code/Unit Code OFF**” command.

Going from Individual Mode to Group programming Mode

You can exit the Individual programming mode when advancing to the next relay by switching to the Group “**House Code Unit Code ON**” command. This puts the unit into the Group programming mode and the remaining Relay Channels will now be programmed as a group. The programming command will be apply to all remaining channels. Pressing the **Program Mode** button after this programming command will exit the programming mode and return the unit to operating mode.

Example Individual Programmed Relay Function Table

8R5PX Relay Channel	X10 House Code	X10 Unit Code	Relay State Off Command	Relay State On Command
1	A	1	Off	On
2	A	2	Off	Pulse 1 Sec
3	A	3	Pulse 1 Sec	Pulse 1 Sec
4	A	4	Pulse 4 Sec	Pulse 4 Sec
5	B	9	Off	On
6	B	9	Off	On
7	B	9	Pulse 1 Sec	Pulse 1 Sec
8	C	16	Off	On

Note that Relays 5 and 6 are set to the same address and will form a DPDT relay group. Relay 7 will also pulse output along with Relays 5 and 6.

The following page is a flow chart for the programming sequence of all 8 relay channels in individual programming mode.

Individual Mode Programming Sequence

X10 Command Programming Sequence	Desired Group Function
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- Press Program Button and hold to enter programming mode.
- Status LED is flashing rapidly. Relay Channel 1 LED is ON
- Send the following X10 Commands to program the desired function. Substitute desired House Code and Unit Code for A1

