Using Elk Sensitive Relays with HomeVision

Elk Products, Inc. Makes a variety of sensitive relays that can be controlled by HomeVision output ports A and C. This article explains how to connect these to HomeVision.

Relay Description

This article covers the ELK-924 sensitive relay, but other relays in the same family work the same way. This relay requires only a low (1.2mA) trigger current to switch the relays, which can be provided by HomeVision. The relay also requires a 12VDC or 24VDC power source to power the relay coil. This must be provided by an external power source (not from HomeVision).

The relay has two control (or "trigger") inputs, a positive trigger and a negative trigger. These determine whether the relay is switched by a positive or negative input. Only one of these should be connected. The negative trigger will be used when driven by HomeVision port A, and the positive trigger will be used when driven by HomeVision port C.

Connecting to HomeVision Output Port A

Make these two connections:

- HomeVision Port A ground (terminal block position 10) to the negative power input ("Neg") on the relay. This provides a common ground between HomeVision and the relay. Note that this same point on the relay will also be connected to your external power source.
- Desired HomeVision Port A output to the negative trigger input ("-T") on the relay.

Here's how this is controlled by HomeVision:

- When HomeVision's output port is set high, the output connection is switched to ground. Since this is connected to the relay's negative trigger (which triggers on a low, or ground, input), the relay is energized.
- When HomeVision's output port is set low, the output connection is opened. An open circuit on the negative trigger input causes the relay to become de-energized.

Connecting to HomeVision Output Port C

Driving this relay from output port C is slightly more complicated than using port A. We must use the positive trigger input for the relay to operate properly. However, HomeVision port C cannot provide enough output current to drive the relay this way. Port C can sink up to 20mA to ground, but can only provide 0.3mA at 5 volts. Since the relay requires 1.2mA at 5V, the output is not strong enough. We overcome this problem by adding a resistor to provide the necessary current

Make these three connections:

- HomeVision Port A ground (terminal block position 10) to the negative power input ("Neg") on the relay. This provides a common ground between HomeVision and the relay. Note that this same point on the relay will also be connected to your external power source.
- Desired HomeVision Port C output to the positive trigger input ("+T") on the relay.
- A resistor (470 to 1000 ohms) from the Port C output to 5 volts (terminal block position 10).

Here's how this is controlled by HomeVision:

- When HomeVision's output port is set high, the output is 5 volts. Since this is connected to the relay's positive trigger (which triggers on a high input), the relay is energized.
- When HomeVision's output port is set low, the output is at ground. This causes the relay to become de-energized.

Other Connections

Refer to the relay's documentation for connecting to the relay outputs.