ULTRAMATE

ELK-9100

Remote Controlled Heavy Duty Switch, X-10 Activated With Built-in Signal Bridge, and Repeater Function

Overview

The ELK-9100 is a remote controlled heavy duty switch which may be used with 220/240 Volt electrical appliances, water heaters, pool pumps, or 110/120 branch lighting loads. It can be activated by an X-10 power line signal or contact closure source. The unit features built-in signal bridging across both legs of the 220/240 power circuit for improved performance of X-10 powerline signaling. It also features a selectable repeater function to provide more reliable X-10 communications over longer distances.

Features

- Controlled Remotely from X-10 Power Line Carrier Commands.
- Optional Dry Contact Closure Activation.
- 30 Amp Long Life Double Pole Relay Contacts.
- Control One 220-240 Volts A.C. Device: Water Heater, Pool or Irrigation Pump, Heater, etc.

  OR
- Control Two 115-120 Volts A.C. Devices: Lights, Motors, etc.
- Built-in signal bridging of the two 220-240 Volts A.C. legs improves X-10 signal performance in the entire building.
- Selectable X-10 signal repeater functionality.
- Single or Dual Commands may be programmed to turn the relay On/Off. Dual commands reduce false activation.
- On-site programming of X-10 signal(s).
- Manual On/Off Push Button Control.
- LED Status indicators for X-10 signal, Circuit 1(Relay 1), and Circuit 2 (Relay 2).
- EEProm Memory remembers the last relay state in the event of a power fluctuation.
- Heavy Duty PVC enclosure prefitted with 1/2" conduit connector. Not suitable for wet locations.
- Color coded 18" wire leads, #10 AWG, MTW, stranded nickel plated copper rated for 30 Amps A.C.
- Mounting hardware included.
- Lifetime Limited Warranty.

Specifications

- Operating Voltage: 220-240 Volts A.C., drawn locally from the electrical panel (line) source.*
- Nominal Current Draw: 26mA
- Relay Contact Rating: 30 Amps at 120/240 Volts A.C.
- Wire Harness: 18" wire leads, #10 AWG, MTW, stranded nickel plated copper rated for 30 Amps A.C.
- Size: 4.36" W x 6.36" H x 2" D.

* Note: The ELK-9100 cannot be powered from GFCI Ground Fault Breakers.
However, GFCI Breakers can be utilized on the output (load) side of the ELK-9100.

* Note: The ELK-9100 is not compatible with the Leviton model 6325 Telephone Transponder due to some non-standard line signals that the Leviton transmits.

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FACTORY CONFIGURATION AND JUMPER OPTIONS

The ELK-9100 is factory configured for single phase 220/240 Volts A.C. operation typically found in residential installations. It contains two Relays which are factory configured to activate at once for controlling of a 220/240 Volts A.C. device. The X10 powerline repeater function is also factory enabled for improved X-10 communications over long distances.

INSTALLATION

1. Locate the 220-240 Volts A.C. electrical panel circuit breaker or the manual disconnect source (line) that supplies the equipment to be controlled.
   * Note: The ELK-9100 cannot be powered from GFCI Ground Fault Breakers. However, GFCI Breakers can be connected to the output (load) side of the ELK-9100.
2. Turn off the electricity supplying the device to be controlled.
3. Mount the ELK-9100 adjacent to the electrical panel or the manual disconnect.
4. Remove the cover of the electrical panel or manual disconnect.
5. Unscrew and remove the two LOAD wires from the circuit breaker or disconnect terminals.
6. Using two wire nuts strip and connect the BLUE wire from the ELK-9100 to one of the removed LOAD wires. Connect the ORANGE wire to the other LOAD wire.
7. Strip and connect the RED and BLACK wires from the ELK-9100 to the LOAD terminals of the circuit breaker or disconnect.
8. Replace the cover on the electrical panel or manual disconnect.
9. Turn on the electricity.

Jumper Configuration

IMPORTANT NOTE: For safety and legal reasons the ELK-9100 should ONLY be installed by a licensed and qualified electrician. There is an inherent risk of electrical shock or death if not properly installed. Do not remove the cover of the unit without first turning off the electrical supply. Except for the configuration jumpers there are no user servicable components inside.

J1 **RELAYS GROUPED** [Default] Both relays activate together for control of 220/240 Volts A.C. devices.
RELAYS SEPARATED Each relay can be commanded separately for control of 110/120 Volts A.C. devices.

J2 **1 (single phase)** [Default] For typical residential installations
3 (3 phase) For commercial 208 Volts A.C. /3 P power systems this must be selected.

J3 **REPEATER YES** [Default] Received X-10 signals will be transmitted onto both sides of a residential electrical system. Signals will be amplified to 5V P-P maximum. Note: Actual signal boost is highly dependent upon the electrical system. This feature cannot be used in the 3 phase or commercial systems.
REPEATER NO Disables the repeater functionality.

OPERATION

MANUAL CONTROL

Pressing the button on the front of the ELK-9100 sends a local signal to change the state of the relay(s). As long as Jumper J1 is set to **RELAYS GROUPED**, both relays will toggle. If Jumper J1 is set to **RELAYS SEPARATED** the relays will toggle through the four possible states of ON/OFF, OFF/ON, ON/ON, OFF/OFF with each button press.

CONTACT CLOSURE OPERATION

The relays may also be controlled from the hardwired terminal inputs located inside the unit. In the **RELAYS GROUPED** operation mode, if the "Trig 1 Relay" terminals are closed together (shorted), both relays will go to the "off" state. In the **RELAYS SEPARATED** operation each relay is individually controlled by closure (shorting) the the appropriate trigger terminals. A relay which is hardwired triggered to be "OFF" cannot be turned ON via X-10.

X-10 OPERATION

The ELK-9100 has been factory programmed to respond to X-10 House Code "C" and Unit Code "16" (in grouped mode only) and can be reprogrammed by the user to respond to other House and Unit Code(s) if desired. **To restore factory default C16 code**, hold the On/Off switch pressed, power up the 9100, hold switch until Circuit 2 led flashes, release switch and press once more, Circuit 2 led will go out and the 9100 is now programmed for House Code "C" and Unit Code "16". Note: the same House Code must be used for both relays.

PROGRAMMING THE X-10 CODES

For **GROUPED MODE**, J1 must be set to RELAYS GROUPED.

With power applied, press and hold the On/Off switch until the CIRCUIT 1 LED begins flashing. From an X-10 transmitter, send an ON signal of the desired House and Unit Code, then send an OFF signal to the same House and Unit Code. The LED will stop blinking and both relays are now programmed.

Example: Enter program mode, send A1 ON and then A1 OFF. The LED will stop blinking. You now must send A1 ON to activate both relays (Circuit 1 & 2 On). You must send A1 OFF to deactivate both relays (Circuit 1 & 2 Off).

The ELK-9100 can also be programmed to respond ONLY to a more secure double signal operation. (grouped mode only) This will significantly reduce the chance of a stray X-10 signal accidentally turning the ELK-9100 On or Off. This method requires a specific second ON or OFF signal within a time window of approximately 5 seconds. The second signal must be the same House Code but a different Unit code. To program this double signal feature, with power applied, press and hold the On/Off switch until the CIRCUIT 1 LED begins flashing. From an X-10 transmitter, send an ON signal of the desired House and the first Unit Code, then send an ON signal to the same House Code and a different 2nd Unit Code. The LED will stop blinking and the relays are now programmed.

Example: Enter program mode, send A1 ON and then A2 ON. The LED will stop blinking to indicate programming is complete. You now must send the sequence A1 ON, then A2 ON with no other X-10 between them to activate the relays (Circuit 1 & 2 On). You must also send the sequence A1 OFF, then A2 OFF to deactivate the relays (Circuit 1 & 2 Off).

For **SEPARATED MODE**, J1 must be set to RELAYS SEPARATED.

To program the relay for CIRCUIT 1, with power applied, press and hold the On/Off switch until the CIRCUIT 1 LED starts to blink. From an X-10 transmitter, send an ON signal of the desired House and Unit Code for CIRCUIT 1, then send an OFF signal to the same House and Unit Code. The LED will stop blinking and the relay for CIRCUIT 1 is now programmed.

Example: Enter program mode, send A1 ON and then A1 OFF. The LED will stop blinking. You now must send A1 ON to activate relay 1 (CIRCUIT 1 On). You must send A1 OFF to deactivate relay 1 (CIRCUIT 1 Off).

To program the relay for CIRCUIT 2, you must use the same House Code that was used to program Circuit 1, with power applied, press and hold the On/Off button until the CIRCUIT 2 LED starts to blink. From an X-10 transmitter, send an ON signal of the desired House and Unit Code for CIRCUIT 2, then send an OFF signal to the same House and Unit Code. The LED will stop blinking and the relay for CIRCUIT 2 is now programmed.

Example: Enter program mode, send A2 ON and then A2 OFF. The LED will stop blinking. You now must send A2 ON to activate relay 2 (CIRCUIT 2 On). You must send A2 OFF to deactivate relay 2 (CIRCUIT 2 Off).

Installation of ELK-9100 at the Load Controlling One 240 VAC Circuit Load

This is the preferred method when the circuit breaker panel is flush mounted, not accessible, or far away from the load. It requires a separate 4" electrical junction and wire connectors for safely completing the installation.

After disconnecting power, mount the 9100 and a 4" electrical junction box near the load. (water heater, motor, etc.) Disconnect the existing wiring from the load and route it into the junction box. Add wiring from the junction box to the load and wire according to the diagram.

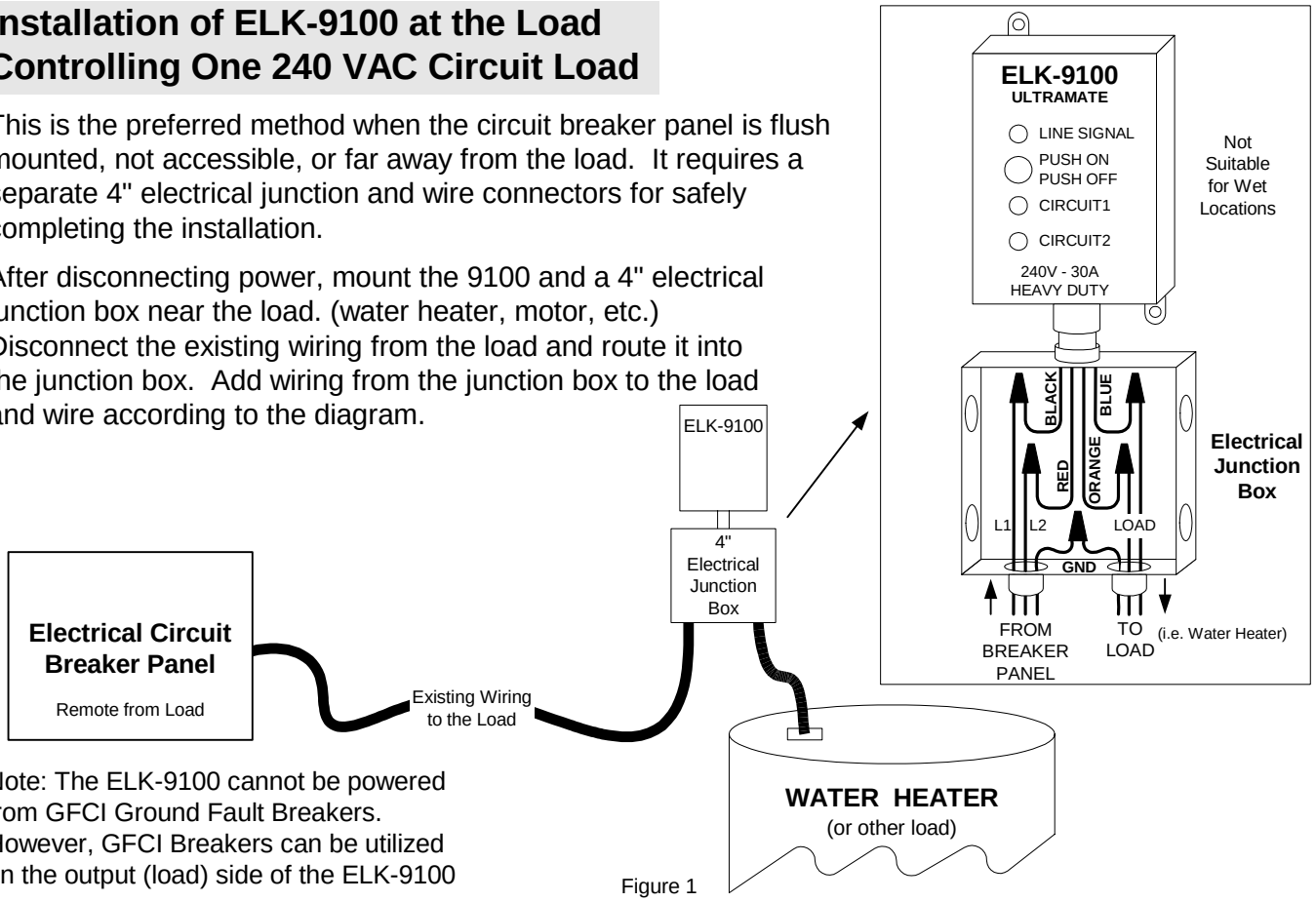

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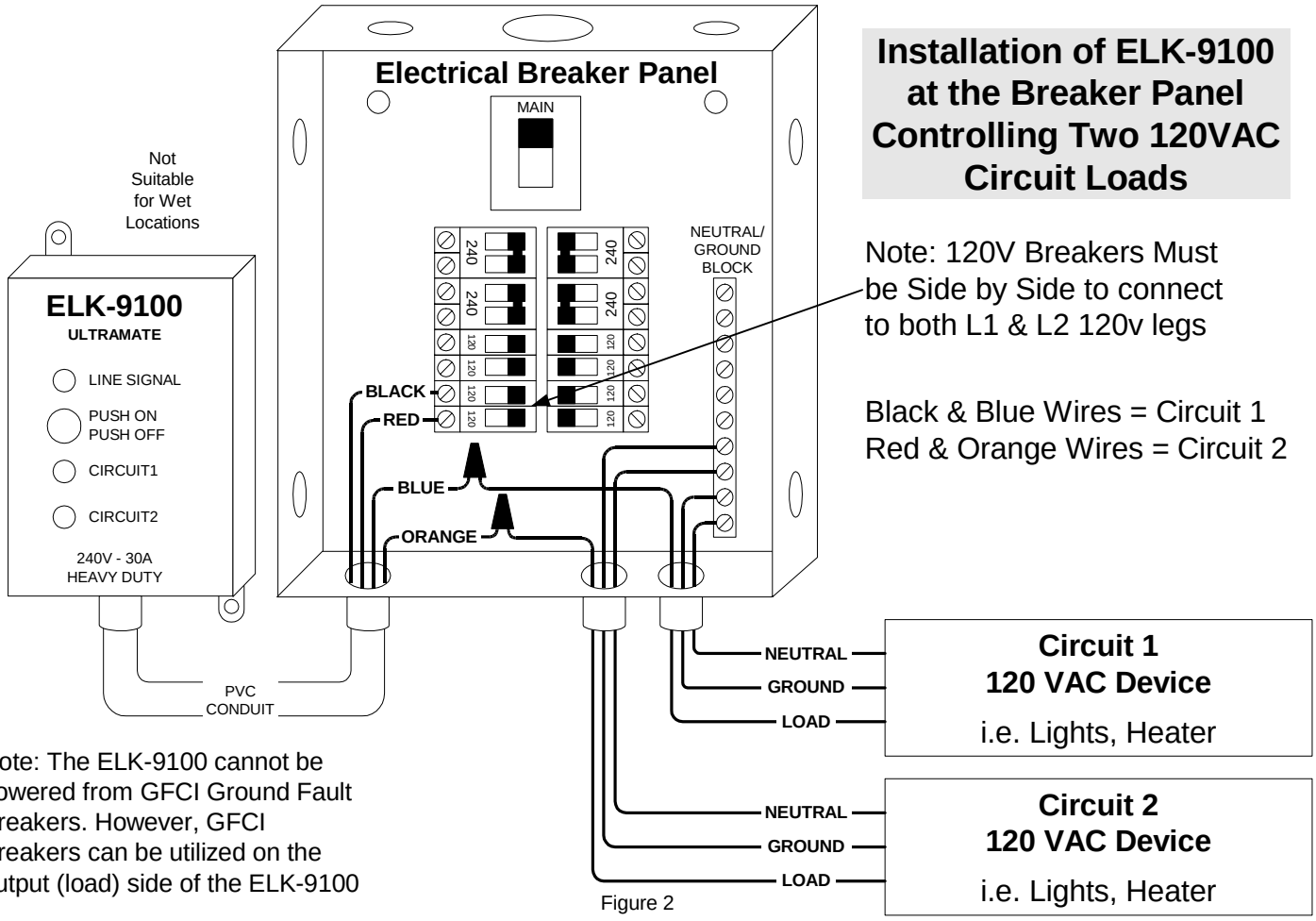
Figure 1

Installation of ELK-9100 at the Breaker Panel Controlling Two 120VAC Circuit Loads



Note: 120V Breakers Must be Side by Side to connect to both L1 & L2 120v legs

Black & Blue Wires = Circuit 1
Red & Orange Wires = Circuit 2

Note: The ELK-9100 cannot be powered from GFCI Ground Fault Breakers. However, GFCI Breakers can be utilized on the output (load) side of the ELK-9100

Figure 2