Delay Timer

ELK-960

Economical Time Delay Relay Module

FEATURES

- Selectable **12** or **24** Volt Operation
- Adjustable Delay Time
- Positive or Negative Low Current Trigger
- **SPDT** (Form "C") Relay
- Selectable Initial Relay State: ON / OFF
- Output Modes: One-Shot or Repeat
- LED Indication of Relay Status
- Five Year Warranty
- Packed In Reusable Poly Storage Box

SPECIFICATIONS

- Time Settings: 1 Sec to ~ 60 Min.
- Relay Contact Rating: 7A @ 30Vdc
- Trigger Voltage: 4 - 27Vdc
- Input Trigger Current: 1.2 mA
- Current Draw With Relay On: 40mA
- Size: 3"x2.2"x1" (Fits Std.Snap Track)

12V Setting:

- Nominal Operating Voltage: 9 - 15Vdc

24V Setting:

- Nominal Operating Voltage: 21 - 27Vdc

ELK PRODUCTS, INC.®
PO Box 100 • Hildebran, NC 28637 • MADE IN USA

Delay Timer
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APPLICATION

The **ELK-960 Delay Timer** is an economical and flexible solution for many general-purpose time delay applications. The unit can be configured for use on either **12V** or **24V** systems, with **positive** or **negative** trigger logic. Trigger voltage can be as low as **4V**, making the **ELK-960** compatible with 5V logic outputs. Setup is quick and easy with thumbwheel adjustment between 1 and 60 seconds. A quick jumper setting converts the time from seconds to minutes! The timer can be configured to activate once for each trigger (**One-shot Mode**), or pulse as soon as power is applied (**Repeat Mode**). Relay can be configured to be normally on or normally off.

Instructions Printed On Back

OVERVIEW

The ELK-960 features adjustable delay time of one (1) second to approximately sixty (60) minutes. It can be selected to operate on **12V** or **24V** DC and be triggered by a negative (**-**) or positive (**+**) voltage. The operating mode and the relay condition can be set as follows: **BEGIN-** Relay turns on when triggered and back off when delay time expires. **END**- Relay turns off when triggered and back on when delay time expires. The delay time can start when the trigger is first applied (**B** mode) or when the trigger is removed (**A** mode). The ELK-960 relay can be set to provide a single **1-SHOT** output or to **REPEAT** (pulse on and off). All options are selected using easy to change mini-jumpers.

TERMINAL DESCRIPTIONS

+ Positive power input. Connect a +9 to +15Vdc source for the 12V setting, or +21 to +27Vdc for the 24V setting. **Warning: Do not exceed +15Vdc if JP6 is in the 12V setting. Damage will occur.**

- Negative power (ground) input. Connect to a negative or ground terminal of the power source.

TGR Trigger voltage input. Connect a 4 to 27Vdc trigger source. Place jumper **JP5** (TRIGGER POLARITY) in the "+" position to trigger from a positive voltage or in the "-" position to trigger from a negative. The trigger voltage may be 4 to 27Vdc, regardless of the main powered input (12Vdc or 24Vdc).

N/O Normally Open side of the relay contacts. No connection to COM when the relay is off.

COM Common or "pole" side of the relay contacts. When the relay is off, COM is internally connected with the N/C contact. When the relay is on, COM is internally connected with the N/O contact.

N/C Normally Closed side of the relay contacts. This terminal is internally connected with the COM terminal when the relay is off.

NOTE: The ELK-960 automatically triggers (turns on) and runs through a delay cycle when first powered up. To reduce waiting time and speed up installation, set jumper JP1 to SEConds and adjust R3 to 1 before applying power. Once power is applied, change the settings as required.

SETTINGS AND JUMPER DESCRIPTIONS

R3		This knob is used to increase or decrease the delay time from 1 to 60. The white arrow is a reference point. Full clockwise is 1 , one quarter turn is 15, halfway is 30, etc.
JP1	SEC	= Delay time is in seconds. Adjustable from 1 ~ 60.[1]
	MIN	= Delay time is in minutes. Adjustable from 1 ~ 60.[1]
JP2	**REPEAT**	= (Adjustable pulse) Relay cycles ON and OFF at delay time interval using a 50/50 duty cycle.[2] A trigger input will temporarily stop the cycle.
	1-SHOT	= Relay activates only once per trigger.
JP3	END	= Relay turns off when triggered and back on when delay time expires.
	BEGIN	= Relay turns on when triggered and back off when delay time expires.
JP4	A	= Delay time starts when trigger is removed.
	B	= Delay time starts when trigger is first applied.
JP5	+	= Selects positive polarity for the input trigger.
	-	= Selects negative polarity for the input trigger.
JP6	12V	= Sets the operating input voltage for 9 to 15Vdc.
	24V	= Sets the operating input voltage for 21 to 27Vdc.

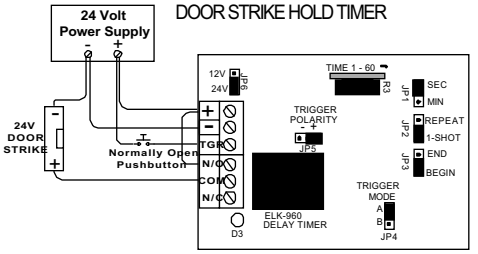
[1] Times are approximate. When adjusted to the highest setting (60 minutes) the actual time delay will be slightly greater.

HINT: For a delay time in minutes, adjust and test with jumper JP1 in the SEConds position. (IE: For a 15 minute delay, adjust and test to 15 seconds) Then move jumper JP1 to MINutes. This quickly provides a reasonable equivalent delay time in minutes.

[2] A 50/50 duty cycle means the OFF and ON times will be equal.

APPLICATIONS AND WIRING DIAGRAMS

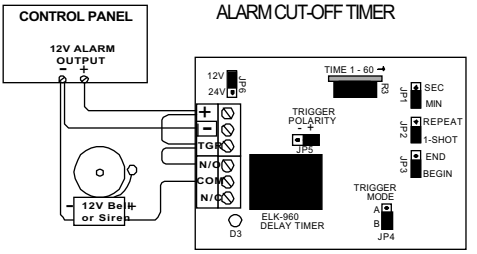
DOOR STRIKE HOLD TIMER



Jumper Settings
JP1 = SEC -Adjust R3 for desired delay time.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = BEGIN -Relay turns on when triggered by pushbutton.
JP4 = A -Time delay (turn off) starts when trigger is removed.
JP5 = "+" -Positive polarity input trigger.
JP6 = 24V -Power source should be 24Vdc.

Used to extend the release time of an access control device or to manually activate a door release device. The trigger is activated by a contact closure or a N/O pushbutton and the door strike remains activated (door open) after the button is released for the delay time set up in the ELK-960.

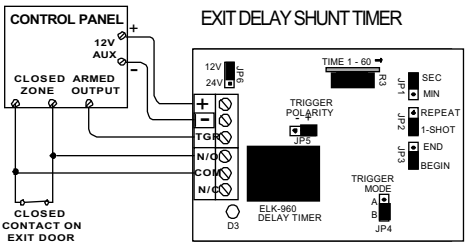
ALARM CUT-OFF TIMER



Jumper Settings
JP1 = MIN -Adjust R3 to SEC, then switch to MIN.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = BEGIN -Relay turns on when triggered by alarm output.
JP4 = B -Time delay (cut-off) starts when trigger is applied.
JP5 = "+"-Positive polarity input trigger.
JP6 = 12V -Power source should be 12Vdc.

Useful for adding a cut-off timer to a control panel that does not have one. It can also be used to shorten the cut-off timer for a control with no adjustable timer.

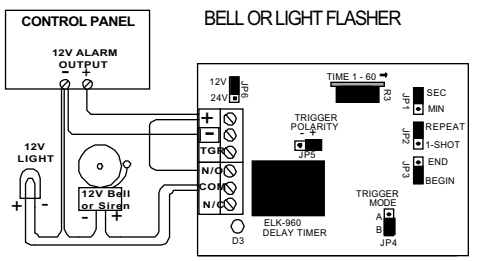
EXIT DELAY SHUNT TIMER



Jumper Settings
JP1 = SEC or MIN -Adjust R3 for desired delay time.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = BEGIN -Relay turns on when triggered by armed output.
JP4 = B -Time delay (turn off) starts when trigger is applied.
JP5 = "+" -Positive polarity input trigger.
JP6 = 12V -Power source should be 12Vdc.

Provides an exit delay to an otherwise instant alarm loop. The ELK-960 is triggered by the control's Armed output. The door contact is then shunted by the relay contacts. After the user has exited and the delay time has expired, the door contact is restored into the loop.

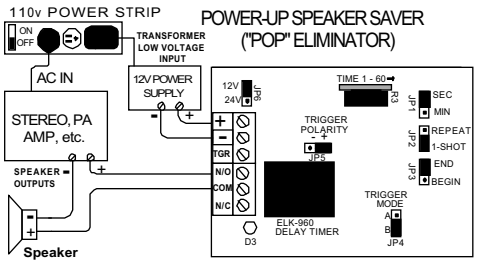
BELL OR LIGHT FLASHER



Jumper Settings
JP1 = SEC -Adjust R3 for desired delay time.
JP2 = REPEAT -Relay cycles On and Off at delay time intervals.
JP3 = BEGIN -Relay turns on when powered from alarm output.
JP4 = N/A -Not applicable. ELK-960 self-triggers on power-up.
JP5 = N/A -Not applicable. No trigger required.
JP6 = 12V -Power source should be 12Vdc.

Converts a steady output to pulsing, suitable for flashing a light or pulsing an audible device. Note: Alarm output must be capable of supplying enough current to drive the bell and light.

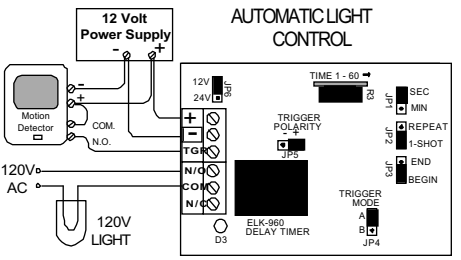
POWER-UP SPEAKER SAVER ("POP" ELIMINATOR)



Jumper Settings
JP1 = SEC -Adjust R3 for desired delay time.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = END -Relay turns on after delay following power-up.
JP4 = N/A -Not applicable. ELK-960 self-triggers on power-up.
JP5 = N/A -Not applicable. No trigger required.
JP6 = 12V -Power source should be 12Vdc.

Useful for protecting speakers (and ears) from devices that generate loud but brief "pops" when powered-up. ie: Stereo or PA equipment. Adjust R3 to keep speaker(s) disconnected for several seconds after power strip is turned on and while the equipment warms up.

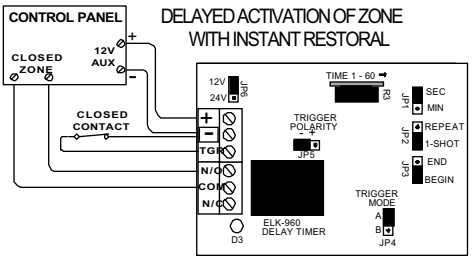
AUTOMATIC LIGHT CONTROL



Jumper Settings
JP1 = SEC or MIN -Adjust R3 for desired delay time.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = BEGIN -Relay turns on when triggered by motion detector.
JP4 = A -Time delay (turn-off) starts when trigger is removed.
JP5 = "+"-Positive polarity input trigger.
JP6 = 12V -Power source should be 12Vdc.

For turning on an interior or exterior light with a motion detector. When motion is detected, the ELK-960 is triggered and the light is turned on. The amount of time the light remains on after the detector resets is adjustable. Delay time will automatically restart each time the motion detector activates.

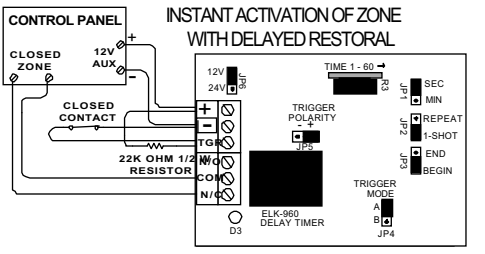
DELAYED ACTIVATION OF ZONE WITH INSTANT RESTORAL



Jumper Settings
JP1 = SEC -Adjust R3 for desired delay time.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = BEGIN -Relay turned on when triggered.
JP4 = A -Delay starts when trigger removed by contact opening.
JP5 = " - " -Negative polarity input trigger.
JP6 = 12V -Power source should be 12Vdc.

Contact closure applies a constant trigger which keeps relay on and zone closed. Delay starts when contact opens. After delay time expires, the relay opens and the zone is activated. Closing the contact restores zone instantly.

INSTANT ACTIVATION OF ZONE WITH DELAYED RESTORAL



Jumper Settings
JP1 = SEC -Adjust R3 for desired delay time.
JP2 = 1-SHOT -Relay activates only once per trigger.
JP3 = BEGIN -Relay turns on when triggered by contact opening.
JP4 = A -Delay starts when trigger canceled by contact reclosure.
JP5 = "+"-Positive polarity input trigger.
JP6 = 12V -Power source should be 12Vdc.

When contact opens, relay is turned on which causes instant zone violation. Contact reclosure will cancel trigger applied by resistor. Delay starts when contact closes. Relay turns off and zone restores after delay time expires.