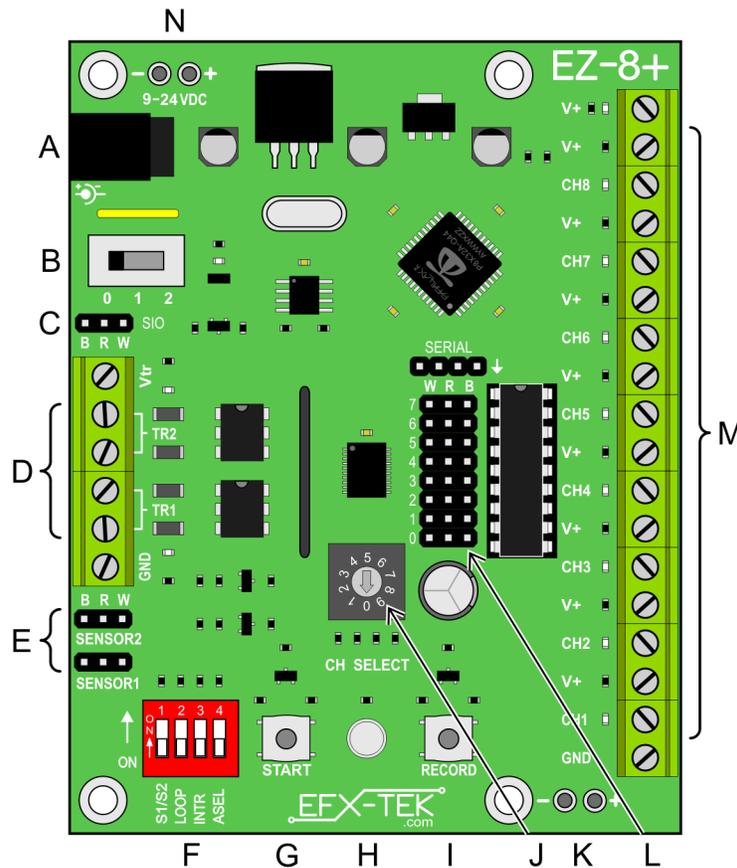


## Quick Start

The purpose of this document is to provide an abbreviated programming guide for the EZ-8+ dual show controller for advanced prop control users and those migrating from the EZ-8.

## EZ-8+ Inputs & Connections



- |  |   |
|--|---|
| <b>A</b> Power input; 2.1mm barrel jack; 9 to 24 VDC | <b>H</b> Multi-color status LED               |
| <b>B</b> Power switch                                | <b>I</b> RECORD button                        |
| <b>C</b> TTL serial IO for AP-16+ (Note 1)           | <b>J</b> Mode/Channel SELECT switch           |
| <b>D</b> DC (9 to 24V) trigger inputs                | <b>K</b> (Optional) TTL header power (Note 2) |
| <b>E</b> TTL trigger inputs                          | <b>L</b> Active-high TTL (5v) outputs         |
| <b>F</b> Configuration switch                        | <b>M</b> Outputs                              |
| <b>G</b> START button                                | <b>N</b> OEM power pads                       |

### Notes:

- Center pin is not powered; connect to 5v using solder-pads on bottom of PCB
- Before use, internal 5v supply to TTL header must be severed (see bottom of PCB for cut point)

## Erase a Show

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Before programming a new show you should erase the EZ-8+ show memory to prevent stray bits in the EEPROM from appearing in your next show.

Steps:

- Set the power switch on (1 or 2)
- Turn the Mode/Select switch to position 0 (play); the status LED will be green
- Set the power switch off (0)
- Move the show select switch (S1/S2) as desired; down (off) for Show 1, up (on) for Show 2
- Press and hold the START and RECORD buttons
- Set the power switch on (while holding buttons)
- Mode LED will be yellow for two seconds (warning), and then begin to flash

Once the mode LED begins to flash yellow the erase cycle has begun and you may release the buttons. Complete erasure takes about three seconds for Show 1, about nine seconds for Show 2. When the erase cycle is complete the mode LED will turn green.



**Note:** If you press the START button in play mode (position 0 of the mode switch) and selected show is blank, the status LED will flash red and green for a few seconds.

## Program a Channel

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Steps:

- Set the power switch on (1 or 2)
- Move the show select switch (S1/S2) as desired; down (off) for Show 1, up (on) for Show 2
- Turn the Mode/Select switch to the desired channel (1 – 8); the status LED will be red (pre-record)
- Press the START button to initiate the record cycle; the status LED will flash
- Enter the behavior for this channel by pressing the RECORD button as desired
- Press the START button to stop the record cycle; the status LED will return to solid red



**Note:** When in pre-record mode with the power switch in position P2, the channel output can be tested by pressing the RECORD button.



**Note:** If other channels had been programmed their activity will be displayed on the channel output LEDs, and on the output terminals if the power switch is in position P2.

## Erase a Channel

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If you need to re-record a channel it is a good idea to erase the old data first; this will prevent stray bits from the old show from running should the new channel program be shorter than what had previously been recorded.

Steps:

- Set the power switch on (1 or 2)
- Move the show select switch (S1/S2) as desired; down (off) for Show 1, up (on) for Show 2
- Turn the Mode/Select switch to the desired channel (1 – 8); the status LED will be red
- Set the power switch off (0)
- Press and hold START and RECORD buttons
- Set the power switch on (while holding buttons)
- Mode LED will be yellow for two seconds (warning), and then begin to flash

Once the mode LED begins to flash yellow the erase cycle has begun and you may release the buttons. Channel erasure generally takes just a few seconds. When the channel erase cycle is complete the mode LED will turn red and you may proceed to reprogramming.

## Test a Recorded Show

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Steps:

- Set the power switch on (P2)
- Move the show select switch (S1/S2) as desired; down (off) for Show 1, up (on) for Show 2
- Turn the Mode/Select switch to position 0 (play); the status LED will be green
- Press the START button; the status LED will flash while the program is running



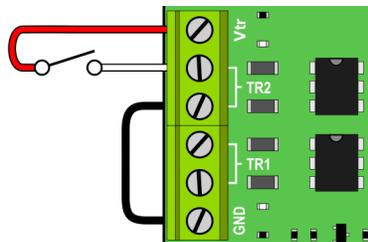
**Note:** If you have a long show programmed into the EZ-8+ and would like to stop it before the end, you can do so by pressing the RECORD button while the status LED is flashing green (playback).

## Start the Recorded Program with an External Device

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**Dry Contact** (e.g., mat switch)

The  $V_{TR}$  (trigger voltage) and GND (ground) terminals are available to provide power for dry contact sensors.



**From Another Controller/Device**

Connect a 9- to 24-volt DC source to the TR1 or TR2 terminals. When the voltage is present the program will start.



**Note:** The TR1 and TR2 inputs are not polarized but do require DC (AC will not work due to input debouncing to prevent false starts from transient inputs).

**PIR**

Connect a Parallax-compatible (5v, active-high) PIR to the SENSOR1 or SENSOR2 header; when the PIR is active the selected program will start.

## Show Linkage

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Show 1 and Show 2 may be used individually or together. When the LOOP switch is in the down (off) position, the shows are treated as individual entities. If the INTR (interrupt) switch is set to the up (on) position, a start input for one program will interrupt the other if running. If the INTR switch is in the down (off) position, additional start inputs will be ignored until no show is running.

Setting the LOOP switch to the up position causes Show 1 to auto-start and loop ("attract" mode). A start input on TR2 or SENSOR2 will cause Show 1 to stop and Show 2 to run. When Show 2 is finished, Show 1 will restart.

## Adding Audio

The EZ-8+ is designed to send start commands through a serial link to the EFX-TEK AP-16+. Use a female-to-female extension cable (#805-00035) to connect from the HC-8+ SIO header to the AP-16+ SERIAL header. On the AP-16+, set the BR switch to on, the A1 and A0 switches to off.

When Show 1 is started, the AP-16+ will play SFX01.WAV; when Show 2 is started, the AP-16+ will play SFX02.WAV.

## Programming with a PC

You can download previously recorded sequences to the PC using Vixen 2.1 and the EZ-8/EZ-8+ Upload/Download Add-In. Programming the EZ-8+ with Vixen is beyond the scope of this Quick Start guide. For additional information refer to the EFX-TEK Tech Support Forums.

## Example Connections



**Note:** The EZ-8+ uses a ULN2803A low-side driver; devices like valves, relays, etc., are connected between the channel control terminal (-) and V+.

