

# TriggerAid v2

## TriggerAid

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A High Speed Camera/Flash Trigger & Time-Lapse Controller.



TriggerAid is based on ATmega328 -running at 16Hz- with Arduino bootloader and programmed in Arduino IDE. Most functions are user-configurable via the menu driven interface. There are 6 dedicated buttons (BACK button functions also as a shortcut to a specific user-defined menu command, if pressed for more than 3 seconds).

It can safely trigger a camera or a flash unit. It has two optocouplers for optimum isolation (MOC3061; they are able to trigger an old flash unit that runs up to 600V or MOCO3021 for up to 400V).

To connect your camera or your flash unit, you have to use the TRS 3.5mm jack. It is a stereo jack, with TIP connected to the optocoupler/output #1 (usually Focus, named as *First Wired Trigger*) and RING connected to optocouplers/output #2 (usually Shutter, named as *Second Wired Trigger*). You can wire a jack to trigger two flash units, or two cameras etc. All you need is a cheap (check on ebay) shutter release cable with 3,5mm male jack. **WARNING: DO NOT connect both camera and flash simultaneously.**

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## Input/Outputs

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- **TRS Jack** (Stereo, 3.5mm, headphones-style) for connecting Camera or Flash (or whatever you want to trigger – **Do not combine** flash & camera)
- **Digital Sensor Input** (+5V, Data, GND)
- **DC Input** (Center Positive, 7-18V)
- **6 Buttons** (Reset, Previous, Next, Enter, Back, Shoot).

## Main Menu

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The menu structure is the following:

- **Light Trigger**
  - On the first line, you can see the real-time reading from the light sensor from 1 to 100. In the last right character, an empty circle indicates that the trigger is not enabled, and when it's filled black, indicates enabled triggering.
  - On the second line, you define the threshold (1..100) and the last character indicates if it will be triggered when the reading is more that the threshold (H / High) or lower (L / Low).

You can change the threshold from 1 to 100 and vise-versa using PREV/NEXT buttons. You can start the trigger with ENTER. Exit with BACK.

- **External Trigger**
  - On the first line you can see the selected trigger and if it is active or not.
  - On the second line you can see when it triggers, if it is responding HIGH or LOW (normally, a sound trigger for example will trigger HIGH when the sound is louder than the setting/threshold).

You can change from LOW to HIGH using PREV/NEXT buttons and you can start the trigger with ENTER. Exit with BACK.

- **Time Lapse**
  - On the first line you can see the remaining time for the shoot and if it's active or not.
  - On the second line you can set the shooting interval (time between shoots) from 0 to 900 seconds (15 minutes).

You can change the values in real-time, using PREV/NEXT buttons. Start the trigger with ENTER. Exit with BACK. Time-lapse mode never ends automatically.

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## - Bulb Mode

- On the first line you can see the remaining time of the shoot and if it's active or not.
- On the second line you can set the exposure (bulb time) from 0 to 900 seconds.

You can change the exposure/bulb time in real-time, using PREV/NEXT buttons. Start the trigger with ENTER. Exit with BACK.

## - High Speed Burst

- On the first line you can see if it's enabled or not.
- On the second line you can set the interval (in ms / milliseconds).

You can change the interval using PREV/NEXT buttons and you can start the trigger with ENTER. Exit with BACK.

## - Self Timer

- On the first line you can see if it's enabled or not.
- On the second line you can set the delay for the self-timer (in seconds).

You can change the delay/self-timer using PREV/NEXT buttons and you can start the trigger with ENTER. Exit with BACK.

## - Setup Parameters

- **Pre Focus.** You can **enable** or **disable** the pre-focus delay. If it's enabled, when you start a trigger mode, the TriggerAid will trigger the focus on your camera. It works only with wired camera connection. Except that some cameras need the focus to be triggered before exposure, it also helps lowering the shutter-lag of the camera. But you have to disable it when you are connecting a flash unit.
- **Wired Triggers.** You can select which trigger outputs (optocouplers) are enabled or not. **First only** (usually Focus), **Second only** (usually Shoot), **Both** or **None**. Use the None when you are using only IR connection to your camera.
- **Infrared Trigger.** You can select the brand of your camera. **Olympus, Pentax, Canon, Nikon, Sony**, or **Disable**. Disable if not using.
- **Light Trigger on HIGH/LOW.** You can select the default value from HIGH to LOW.
- **External Trigger on HIGH/LOW.** You can select the default value from HIGH to LOW.
- **Pre Shoot Delay.** You can define a delay which is executed **before** taking the shot, after trigger. In milliseconds.
- **Shutter Delay.** You can define the delay which the trigger will stay enabled. A value of 250ms works with most cameras and/or flashes. Very low values may not work with your camera or flash, but you can do a trial-and-error-procedure to find out the optimal for your setup.
- **After Shot Delay.** You can define a delay which is executed **after** the shot.
- **Time Lapse Interval.** You can define the time between shots in seconds (interval) for the time-lapse mode.
- **High Speed Delay.** You can define the delay between shots/triggers. Delay is defined in ms (milliseconds).
- **High Speed Limit.** You can define the maximum times that the high speed burst mode will trigger.

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- **Self-Timer.** You can define the delay for the self-timer (in seconds).
  - **Shortcut.** You can define what the BACK button will do, if pressed for more than 3 seconds.
  - **Buzzer.** You can **enable** or **disable** the built-in buzzer.
  - **Buzzer Duration:** You can set the time that the buzzer will sound (in ms).
  - **Button Delay.** You can set the delay time when a button is pressed (in ms).
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- **Information**
    - Information about the device. It displays the current version, the memory status and the voltage (it should be 5V / It measures the voltage of the device, not the battery).
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- **Factory Reset**
    - You can reset all the settings to factory defaults. You have to do that after replacing the firmware or at the first use of the TriggerAid.

## Default Values / Settings when Factory Reset

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- Pre Delay: 0 ms
- Shutter Delay: 250 ms
- After Shot Delay: 250 ms
- Infrared: Disabled
- Pre Focus: Enabled
- Shortcut: Light Trigger
- Optocouplers/Outputs: Both Enabled
- High Speed Delay: 5ms
- High speed Limit: 10 times
- Built in Light Trigger: on HIGH
- External Trigger: on HIGH
- Time-lapse Interval: 15 seconds
- Self-Timer Delay: 12 seconds
- Button Delay: 50 ms
- Buzzer: Enabled
- Buzzer Duration: 50 ms

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## Miscellaneous information about the TriggerAid.

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TriggerAid can trigger a camera via infrared (acts as a remote control for your camera). When using wired connection to your camera, don't forget to *disable* the infrared, as infrared triggered first and the result is lower speed. But a nice hint is that if you want to trigger 2 cameras for example, you can use both wired (for the first) and infrared (for the second). The downside is that infrared triggering has some lag, but it works fine for time-lapse shoots etc.

To power the device you have to use a 2.1mm jack (WARNING: The positive voltage must be on the center pin). Voltage can vary from 7 to 18V DC. Also note that if supplied with more than 9V, the voltage regulator (the component that is at the top left corner, next to DC jack) it gets REALLY HOT! Do not touch! For best results I prefer 2-cell LiPO or 9V NIMH batteries.

The current consumption is about 30mA in standby mode. When using the built-in light trigger or the time-lapse mode, the current is about 43mA. When triggered is about 50-60mA. In Bulb mode the current is about 60mA (as it stays triggered for a long time). Using an external trigger the current is about the same as built-in light trigger but it depends on the trigger module.

All the consumption readings are measured by using a 8.4V LiPO battery. (2-cell LiPO batteries are great for long-time autonomy).

Another one hint: When you do time-lapse or leaving the device powered for a long time, you can remove the LCD screen for reducing the power consumption. It goes from 30mA to 15mA in standby (LCD needs 15mA when you are using a backlit display). The downside is that when you plug the LCD back, you have to reset the device to get LCD working.

Behind the LCD screen there is a trimmer pot that is controlling the contrast.

The two DIP switches near the TRS jack, when in ON state, they activate pull-down resistors on the trigger output (some flash units may need that feature but usually leave them both at OFF position).

Note that when connecting an external trigger, you have to double check for polarity. The polarity/pinout (+5V, Data, GND) is marked next to the input.

On the first use of the TriggerAid you have to do a *Factory Reset* (erases all memory and stores default/safe values).

Latest version of the software is located at <http://github.com/vegos/TriggerAid>.

More information/photos/etc you can find at <http://www.facebook.com/TheTriggerAid>.

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