

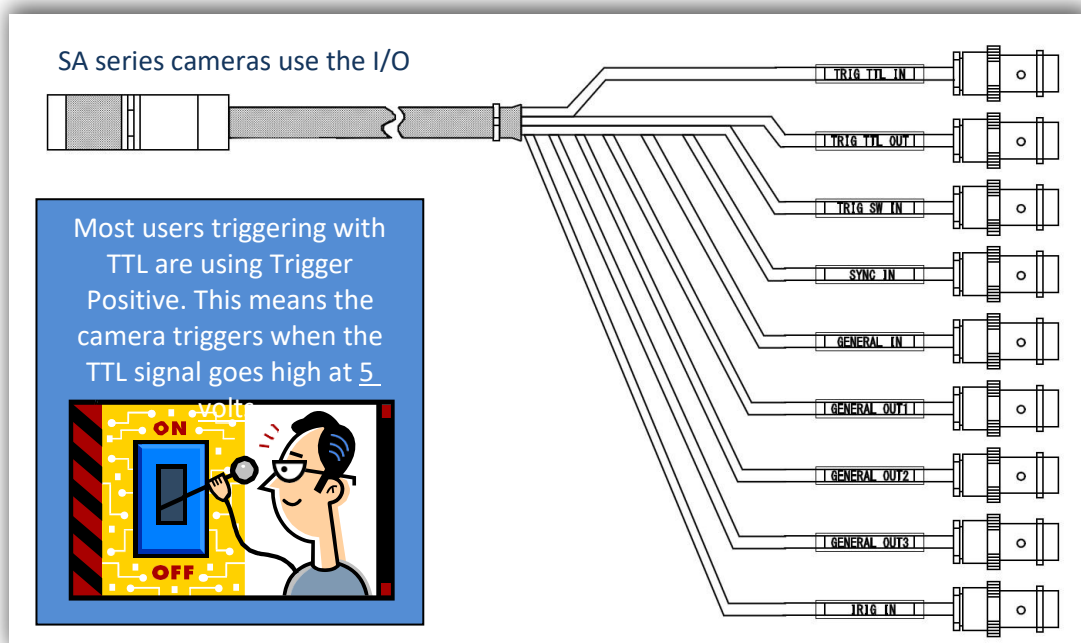
# Photron

MONTHLY TECH TIPS WITH MIKE



## TOPIC: New Uses for Your I/O Signals

Some users only use the I/O connectors to input their trigger signal, but below are a few other useful ways to use the I/O signals.



Mini series cameras have I/O connectors on rear panel



To simplify how the TTL signal works think of it as an “on/off” switch controlled by voltage. The switch is off (or low) when the TTL signal is at 0 volts and the TTL signal is on (or high) when the signal is at 5 volts. The newer Photron Cameras can handle a 12 volt signal, but the TTL circuit is designed around this 0-5 volt rule. If you were to hook up any of the camera outputs to an oscilloscope you would see a 5 volt square wave representing these TTL signals.

## 1. Test coaxial cables to make sure they are good.

Countless tests have been ruined because a coaxial cable was damaged before setup and nobody tested it. This can cause problems with triggering, synchronization, and IRIG timecode input.

To Test: Plug one end of your cable into a GENERAL OUT connector and the other end into the SYNC IN connector. If the SYNC IN LED lights on the back of the camera and stays lit, your cable is good.

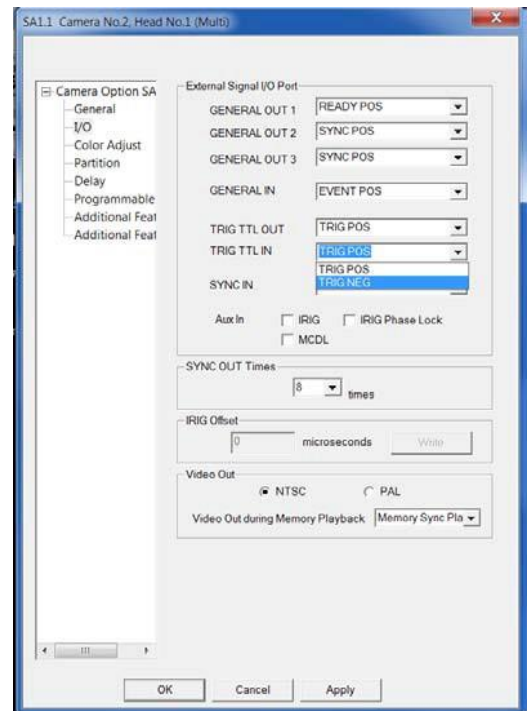
## 2. Use the signal to create a “make trigger”.

A make trigger is a switch closure trigger because the two connectors “make” contact. Since the coax cable consists of the center conductor and the outer metal jacket, when you touch these two together it completes the circuit and triggers the camera. This can be easily accomplished with the use of a balun pictured above. These devices convert the BNC connector into a two terminal connector to which you can attach the two sides of a pressure plate to trigger on contact. Baluns are readily available and can be purchased for just a few dollars.



## 3. Synchronize at different frame rates

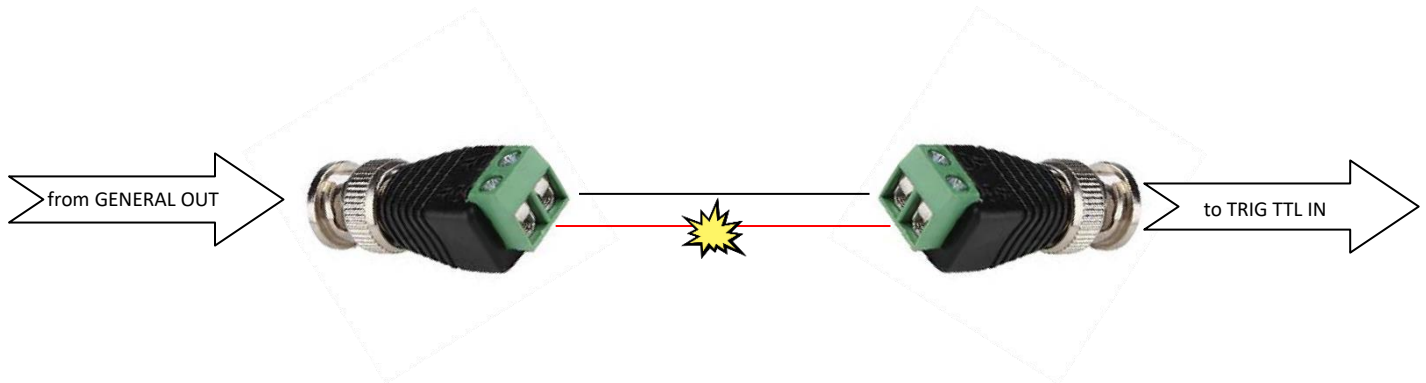
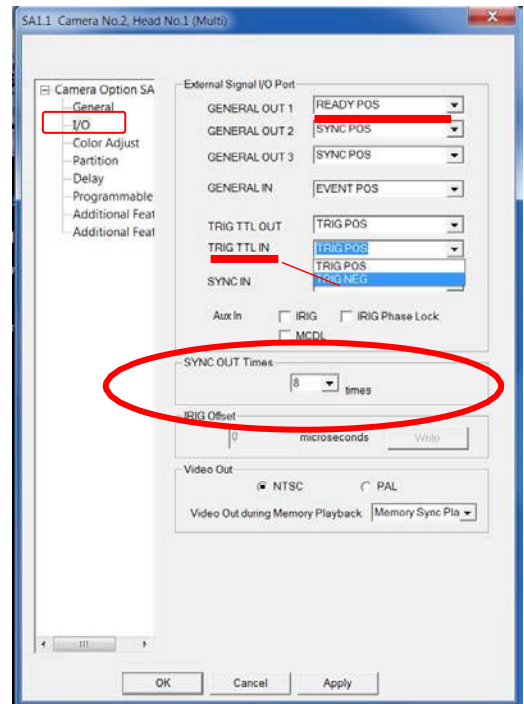
You can output synchronization signals to other devices at multiples of your master camera’s frame rate. Useful in pulsing a light source for frame-straddling PIV or driving the number of samples a DAQ takes for each frame.



## 4. Use the signal to create a “break trigger”

You can also utilize the baluns to trigger the camera when either of the wires is broken.

1. Output a 5 volt signal from one of your GENERAL OUT connectors (using Ready Pos forexample).
2. Set your camera to trigger on a negative TTL pulse.
3. Connect the GENERAL OUT and the TRIG TTL IN connectors together using the baluns.
4. Set the camera to “Trigger In” and whenever one of the wires between the baluns is broken, the 5 volt signal will be lost and the camera will trigger.



We hope this tech tip was helpful and if you have any questions or comments please contact us:  
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