

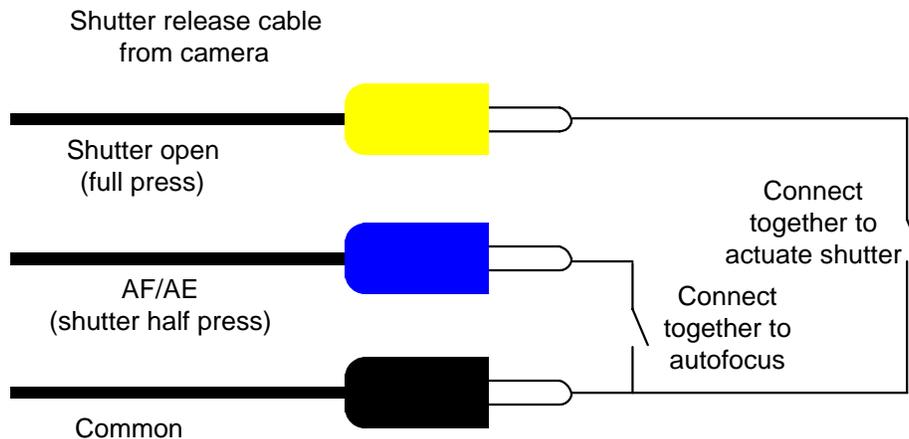
Using a HiViz trigger circuit to actuate a camera shutter via an SCR output¹

You can actuate the shutter of an electronic camera using the SCR outputs of any of the HiViz trigger circuits. This works fine as long as you make connections to the breadboard the same as you would for a flash unit.

For the following, you'll need 1) your HiViz trigger circuit and the 2-conductor output cable that came with it, 2) the shutter release cable for your camera, 3) a simple on-off toggle or slide switch, 4) short lengths of hookup wire, 5) a wire stripping tool, and 6) electrical tape.

Shutter release cables for electronic cameras have three active wires.² As an example of the functions of these three wires, we'll use the Nikon MC-22 shutter cable. For the MC-22, the three wires terminate in banana plugs colored yellow, blue, and black as in the diagram below. Let's suppose you have the MC-22 connected to your camera at the other end of the cable. Here's how you would carry out the shutter operations:

1. Connect the blue and black plugs together. This will cause the camera to carry out its autofocus and auto exposure (AF/AE) operations in the same way that the half press of the shutter button would.
2. While keeping the blue and black plugs connected, connect the yellow plug to the other two. This will cause the camera shutter to actuate in the same way that a full press of the shutter button would.



Unlike the MC-22, your shutter release cable probably terminates in a pushbutton remote rather than banana plugs.³ In order to determine which wire has which function for your cable, you may need to open the remote to see where the wires are connected. Inside, you should find what amounts to a two-stage switch with three contacts. One contact will be common to both stages. Another contact is for the half press of the button and a third for the full press. In order to gain access to the bare wires, you can either disassemble the remote or just cut the remote off.

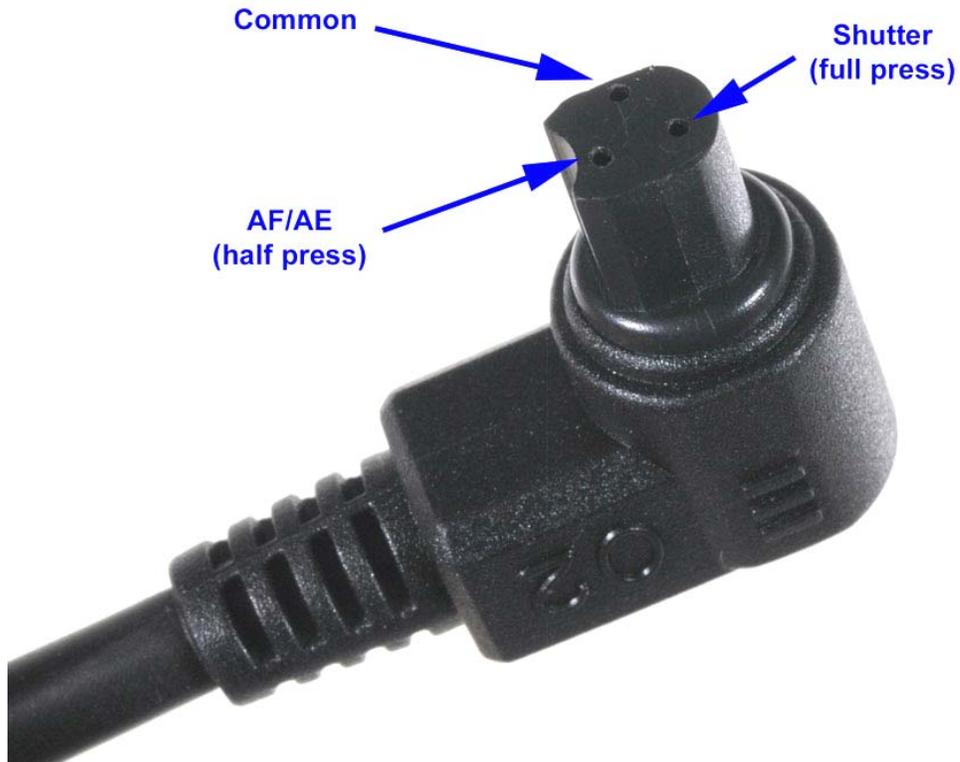
Here's another way to check for the functions of the wires if you have a meter to test connectivity and one of the cables whose pinouts we give below. First, you'll need to get access to the three wires. Again, you can open the remote, or you can simply cut the cable in two. We recommend leaving about 6 inches on the remote end in case you want to splice the cord back together later. If you cut the cord, strip the wires back for your connectivity tests. Then check for connectivity between the bare wires and the pins at the camera end of the cable.

Canon RS-80N3 cable: This cable uses the 3-pin jack shown below with the functions indicated. Slip a fine wire down into the holes in order to reach the contacts for connectivity testing.

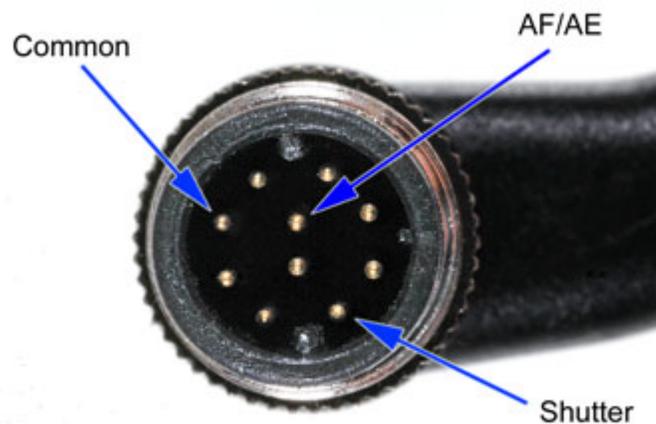
¹ If you want complete electrical isolation for your camera, use the Camera Opto-Switch. See this link: <http://hiviz.com/kits/cos.htm>.

² Some shutter release cables have more than three wires, but the other wires have no function in the basic shutter release cable. The wires would be used in more advanced controllers.

³ If you have a wireless remote, these instructions don't apply.



Nikon MC-30 cable: This cable has a 10-pin connector. See the photo below.

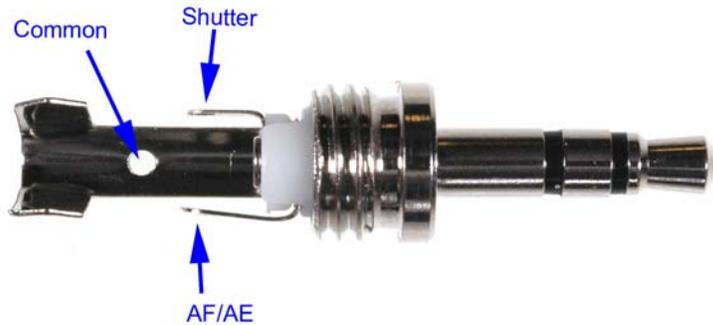


Canon RS-60E3 cable: If you have a camera that uses the Canon RS-60E3 cable, then you're in luck. This cable uses a standard 3/32" (2.5mm) stereo phone plug for the camera. So rather than buying the RS-60E3 cable or cutting one up, you can simply purchase the plug from an electronics store, solder three wires to the plug, and make connections as indicated in the photos below. The jacket has been removed in the second photo to show which solder lugs correspond to the common, AF/AE, and shutter functions.

Male stereo connector for shutter release cable, showing functions of tip, ring, and sleeve



Connector showing solder connection points



In order to connect the shutter release cable to your HiViz trigger, use the gray 2-conductor output cable that came with the trigger. Connect the red and black wires of the output cable to the trigger circuit breadboard the same as you would if you were using a flash unit. For reference, see the instructions for your trigger circuit at this link:

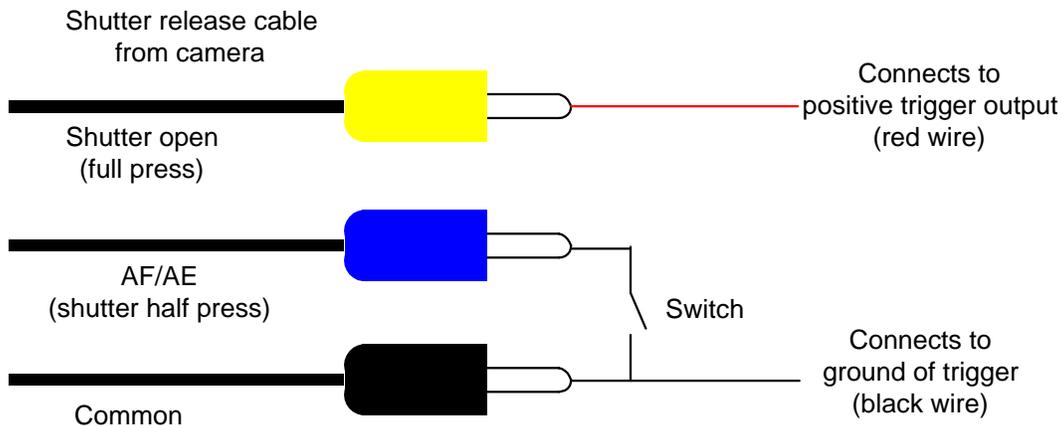
<http://hiviz.com/kits/instructions/instructions.htm>.

Now to connect the output cable from the trigger to the shutter release cable, do the following:

1. Connect the black wire of the output cable to the wire or contact that you identified as common.
2. Connect the red wire of the output cable to the wire or contact that you identified as shutter.

Next you need the switch. A switch such as the SW1 shown on this page will be fine:

http://hiviz.com/kits/project_parts.htm. A slide switch will also work. Connect the switch between the wire that you identified as common and the one that you identified as AF/AE. If, for example, you were using the Nikon MC-22, your connections would be the ones shown in the diagram below.



Now here's how you operate the camera using your trigger circuit and the shutter cord.

1. In most cases, it will be best to first set your camera for manual focus and exposure operation. This gives you the control you typically need for high-speed photography situations.
2. Now, assuming that you're all set up to take a picture, close the switch between common and AF/AE.
3. Your trigger is now enabled. If you're using a photogate, when the beam is interrupted, the camera shutter will automatically be actuated. If you're using a sound trigger, detection of a sound will actuate the shutter.
4. If you want to view the photo that you've taken, first open the switch between common and AF/AE. If you don't do this, the LCD screen on the camera may remain blank.
5. If you want to leave your camera set up to take photos in your absence (as for example in photographing insects and birds), leave the switch closed. This will enable the shutter to be actuated whenever the trigger circuit is actuated.

Possible camera reset problem

With many cameras, the trigger circuit will remain enabled shot-after-shot without any intervention. For some cameras, however, the camera is automatically disabled after each shot. In order to reset the camera, the trigger output cable can be opened and reclosed. This, of course, is inconvenient as well as unworkable if you're leaving the camera set up for long periods to time to capture photos of birds or insects. If you find that your camera requires resetting, try replacing the SCR with a 2N2222 or other general-purpose NPN transistor. Insert the transistor in the same holes with the same orientation as the SCR. This solves the problem in many cases. Caution: When triggering a flash unit rather than a camera, we recommend against the replacement just described, as the SCR protects the trigger circuit from the voltage across the flash terminals.