

Output Trigger Design and Operation

The array electronics board provides a simple logic level output interface. This can be used for signaling external circuits, such as a shutter, or some process monitor, etc... The circuit is shown in the figure below:

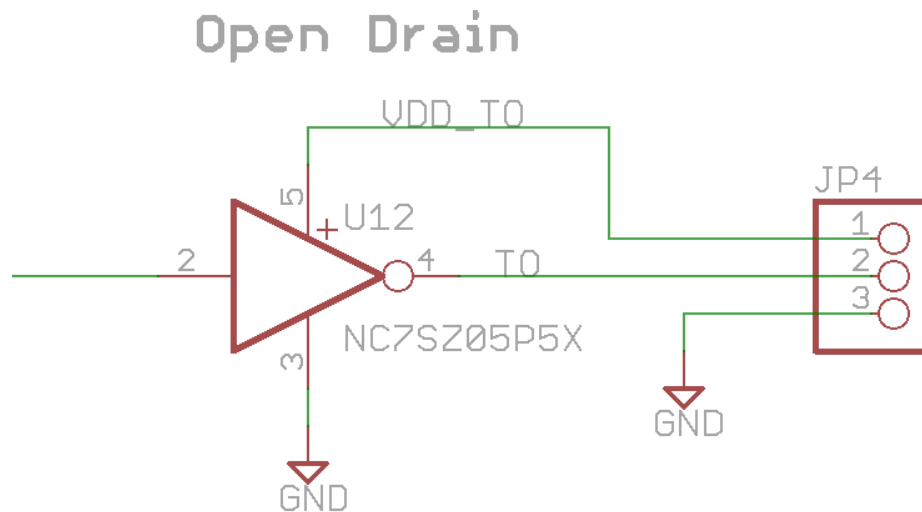


Figure 1: Output Trigger Schematic

The output device is an open drain inverter with its power supply pin brought out to an external interface header. The device used can operate from 1.8V to 5Volt depending on the voltage supplied on pin 1 of JP4. Since the part is open drain an external pull up resistor is required to complete the circuit. The location of JP4 on the board is shown in Figure 2 on the next page. JP4 is installed as a MOLEX connector, part number 22-23-2031 – this is a 3 pin 2.54mm pitch male header. There are several mating connectors made by MOLEX, which can be found on either the MOLEX site or at large national distributors like Mouser or Digikey.

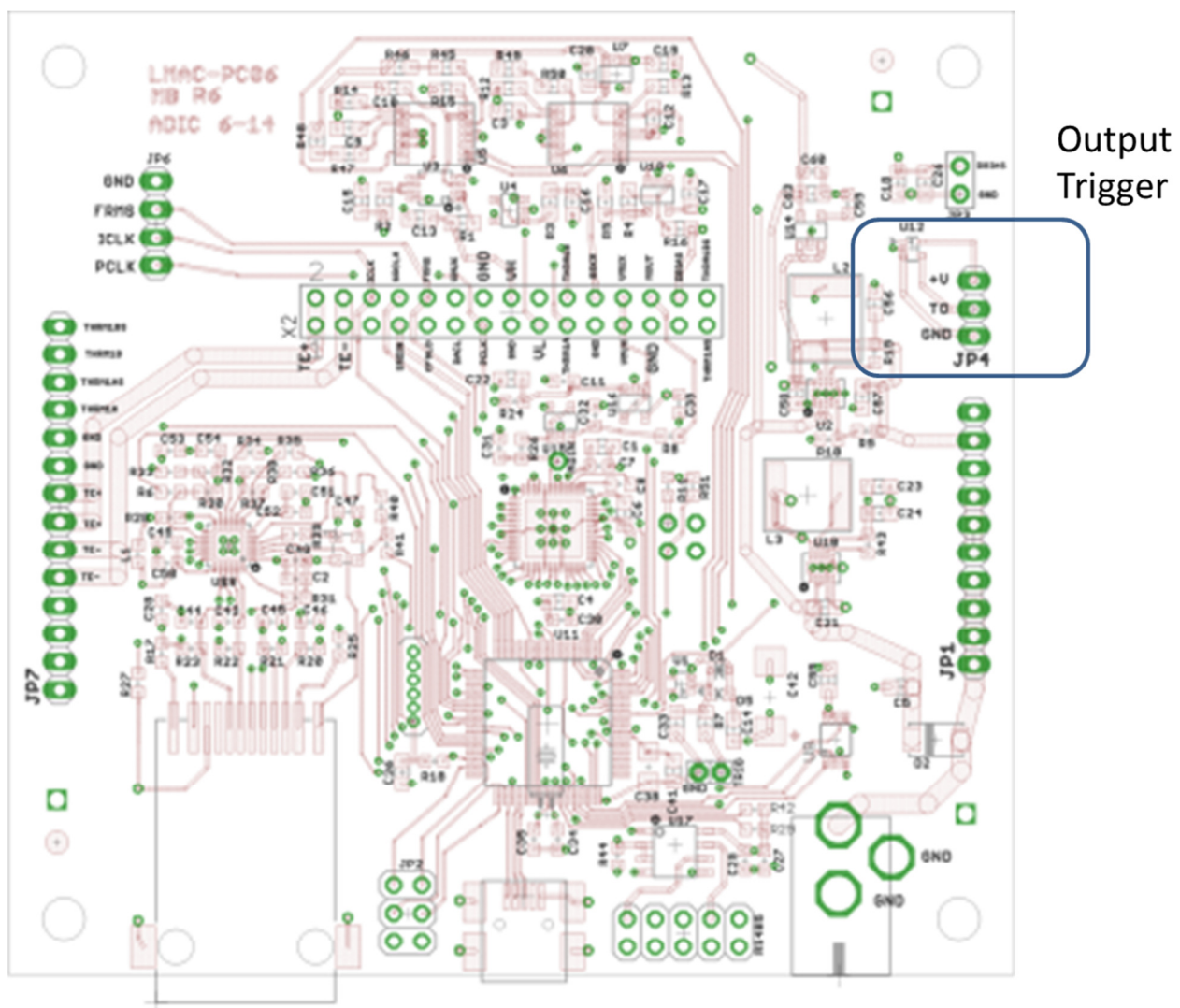


Figure 2: Output Trigger Connector Location

Interface Example: Brandstrom Instruments A1048

The Brandstrom Instruments A1048 is a compact solenoid based device that operates as a bi stable shutter. This means the solenoid which controls the shutter movement need only pulse on and then the shutter position is retained via a magnetic latch. Clearly a shutter of this type cannot be directly connected to the output trigger circuit describe on the previous pages, there has to be additional interface electronics.

The first thing that must be known is: what are the drive requirements for the A1048 shutter? The device data sheet provides this information; to operate the shutter a 100ms pulse at 6V and 200mA must be applied. The polarity of the pulse determines which direction the shutter moves in. There is no feedback to determine current shutter position.

To operate this shutter from a simple logic level output trigger circuit requires generating timed pulses of the rising and falling edges of the output trigger signal, that then drive either an H bridge or some sort of commutating drive. A/DIC has designed such a board, an image of which is shown below. The board measures 1.30" on a side and requires an external 6 Volt supply capable of at least 300mA of output.

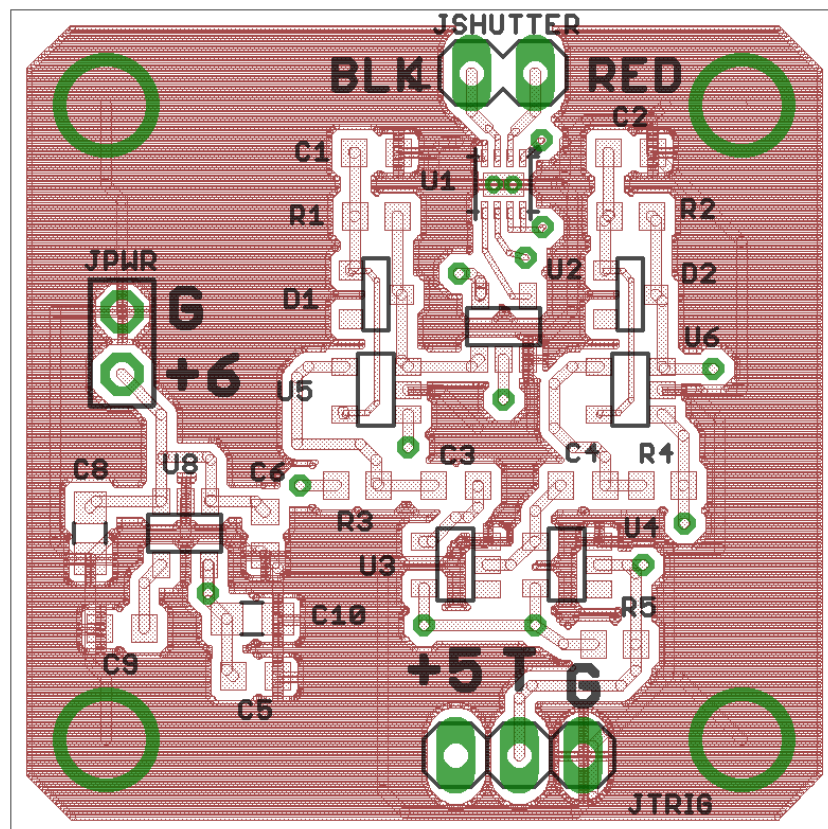


Figure 3: Brandstrom A1048 Shutter Controller Board