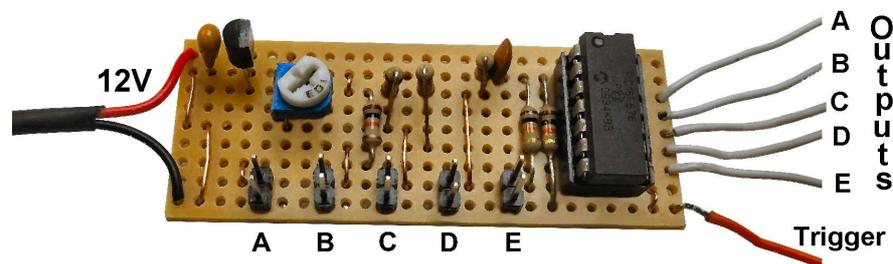


Pocket Money Kit of the Month – Jan 2019

No 26 – Event sequencer

Animated sequences without programming

This module lets you create sequenced activities such as lights coming on and off, animations, and sound effects – all with time delays between each activity set by you – and without the need for any programming skills.



The sequencer module has one trigger input and five available outputs. Connecting the trigger wire down to 0V starts the sequence. Each output can be set for a delay between 1 second and 10 seconds before it switches on or off.

Our '*Backen Forth*' demo layout runs a good shed animation sequence when the train enters the siding. A train detector detects the presence of the train, brings the trigger wire down to 0V and initiates the following sequence:

- A The lamp above the shed door comes on
- B The storeman comes out (servo-driven)
- C The shed's sliding door opens and the interior light comes on (servo+LED)
- D The cranes rotates over the wagons (servo again)
- E A lorry moves round from behind the shed (another servo)

When the train leaves, the trigger is no longer held at 0V and the sequence runs in reverse (i.e. lorry moves round behind shed light goes out over shed door).

Other examples could include station activities, factory animations, animated water cranes, etc. The module opens up opportunities to have lights, movement, audio all being delivered in your required time sequence.

The trigger input could come from a switch on your control panel, a TOTI (train on track indicator), an output from a CBUS or EzyBus module, a microswitch, etc.

The outputs, with suitable interfaces, could control LEDs, servo controllers (Servo4, EzyPoints, etc.), relays, motors, etc.

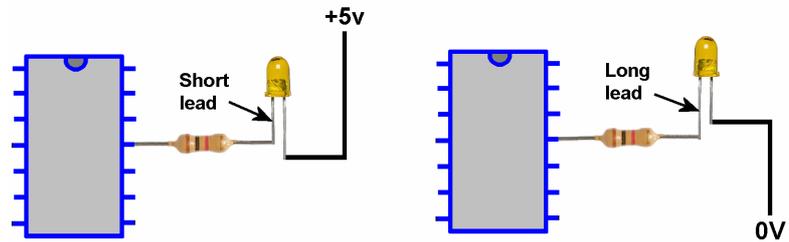
The module is pre-programmed to have a forward sequence and a reverse sequence. During the forward sequence, each of the five outputs go to 0V in turn (from A to E), with the pre-set delay between each change. The reverse sequence see outputs E to A go back to +5V with the same delays.

Taking the trigger down to 0V starts the forward sequence and the reverse sequence starts when the trigger is no longer held to 0V.

There are five 2-pin Dupont male connectors and you use a single jumper link to set the timings, along with adjusting the value of the small timer resistor.

Connecting LEDs

Connect a LED plus dropper resistor between one of the outputs and any +5V point or 0V point.

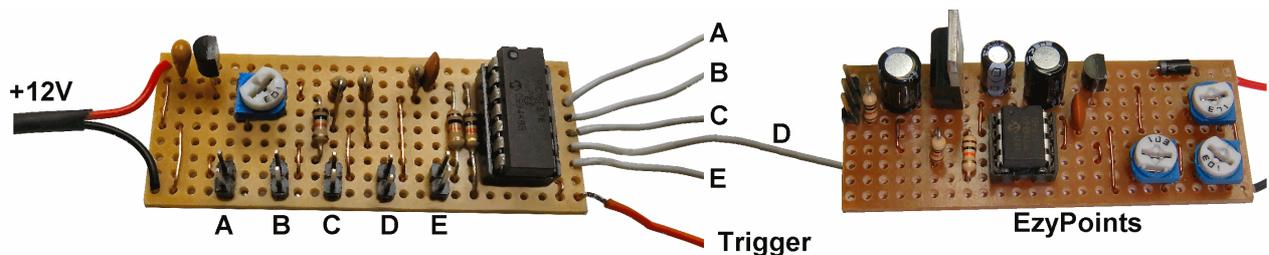


The recommended maximum current available from any output pin is 25mA.

Connecting servos

Servos cannot be driven directly from the sequencer module. You have to use a servo controller such as the Servo4 board or an EzyPoints module.

This example shows output D of the sequencer being directly connected to the input of the EzyPoints module. Both modules must share the same 0V connection.



The wiring to a Servo4 controller is similar.

The Servo4 controls up to four servos and therefore has four trigger inputs.

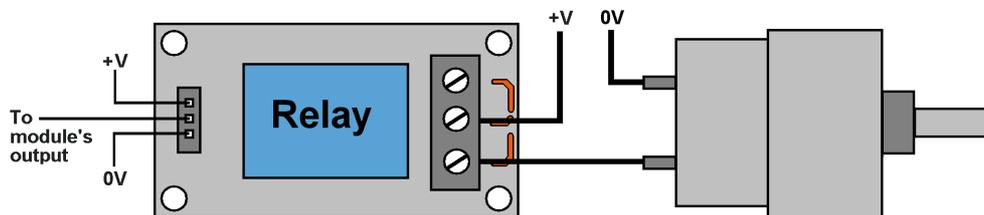
Any one of these inputs can be directly connected to a sequencer output.

Again, the 0V of the sequencer should share the same 0V connection of the Servo4.

Connecting relays

The sequencer module's outputs switch between 0V and 5V.

If you buy relay modules that include an 'opto-coupler', you can use either a 5V or a 12V relay module. Use a relay that is 'active low' (needs a 0V on its input to switch the relay).



This example shows a relay operating a motor (machinery, conveyor belt, etc.).

It could also be used to switch other high current or high voltage devices on and off (12V LED strips, etc.).

The kit is available at all West of Scotland activities (for £1.10) or can be purchased from the national MERG website as PMP26.

This will appear as a full article, with more details, in the next Journal.