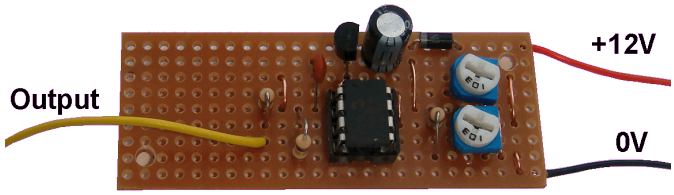
West of Scotland Area Group

Pocket Money Kit of the Month – September 2019

No 20 – Versatile timer

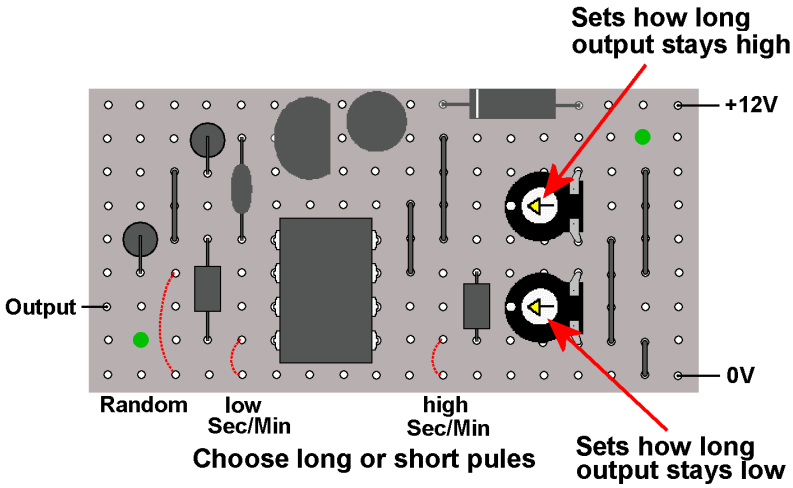
Layout lights, animations and sounds can quickly become annoying if operated constantly, so it is best that these only operate from time to time.
This module provides control over the delay between these activities and also how long the activity lasts.
As an additional feature, it offers the ability to produce random times between activities.

Two trimmers control the on and off times and these are adjusted with a screwdriver. The module has a single output and it can be switched high (to +5V) or low (to 0V).



One trimmer sets how long the output remains high while the other sets the time the output remains low.
Wire links determine whether these timings are in seconds or in minutes. The timings work independently of each other so, for example, you can have an activity that lasts seconds occurring many minutes apart.
The available options are:

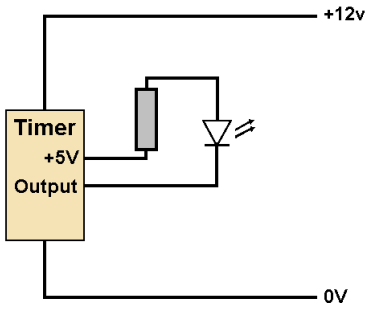
- With no links fitted, the high and low times can be set up to around 25 seconds each. This would be useful for flashing or pulsing LEDs.
- With both of the timing links fitted, the high and low times can be up to around 9 minutes.
- With just one timing link fitted, you can have a long delay between short bursts of activity, or vice versa.
- With the random link fitted, the high time's delay will last a random time up to 25 seconds or 9 minutes (depending on whether the 'high' link is fitted). The low time will still be determined by that trimmer's setting and whether the 'low' link' is fitted.



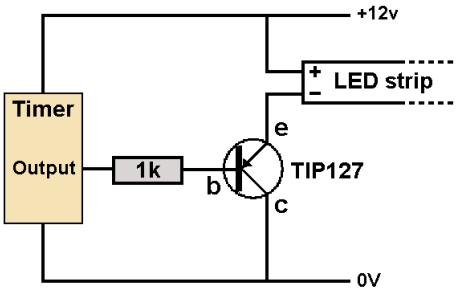
The kit is available at all West of Scotland activities (for £1.20) or can be purchased from the national MERG website as PMP 20.

LEDs

The module can be used to simulate emergency vehicle lighting, with flashing or strobing effects.
You can connect a LED directly to the module's output as shown in this diagram.
The LED and its resistor are fitted between the module's output and the module's +5V supply
If required, several low-current LEDs and their resistors can be fitted in parallel with each other between the module's output and the +5V supply, as long as the combined maximum current does not exceed the 25mA limit.

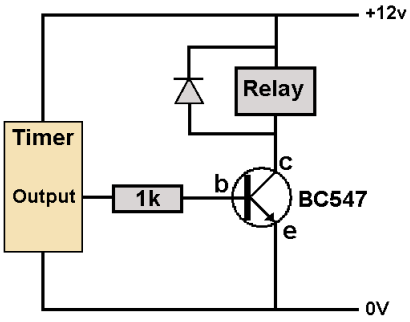


While it can handle low-power LEDs, the PIC cannot supply enough power to directly drive a 12V LED strip.
So a power transistor is used to boost the current handling capacity.
This diagram shows a TIP127 power transistor connected to the module's output.
In this case, the LED strip is connected between the transistor and the +12V supply.



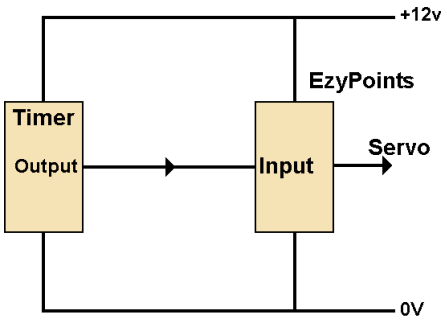
Relays

If you want the module to be able to control high power devices such as motors, you can use a relay to do the switching.
This diagram shows the timer's output driving a transistor that switches a relay. The relay contacts are wired to the device being used.
Or, you can use a relay module (see this month's Tip of the Month).



EzyPoints

This timer module is very useful if you want to animate something on your layout from time to time.
You can make a door open, the station master pop out of the station building, a workman rotate a stop/go sign, a lorry tip its load, a rabbit pop its head out of its burrow – and many many more little touches.
No modifications are required to either module.
The output of the timer board is directly wired to the trigger input of the EzyPoints board as shown in this diagram.



Sound modules

When not overdone, the occasional use of sound can add life to a layout. Your country scene could have cows mooing and dogs barking from time to time. Your industrial scene could have machinery being run periodically. Your town scene could have car horns and police sirens interrupting the peace occasionally. The limits are your imagination.