

## MIDI Activity Indicator

The MIDI Activity Indicator Unit (MAI) provides a simple visual indication of MIDI activity on a MIDI line.

The unit consists of two identical modules allowing the user to monitor both MIDI-IN to and MIDI-OUT of a device.

To minimise loading and interference with the existing system, each module provides a MIDI-THRU socket so that the module can be fitted inline with the MIDI line to be observed.

The unit operates from a 9VDC supply so can either be battery-operated or powered from an external DC supply.

### Theory of operation

Operation of the unit is very simple. The complete MAI consists of three modules or circuits:-

1. Power supply module, and
2. Two MIDI monitor circuits.

The power supply module is built around a 78L05 voltage regulator and does not really need any explanation.

The MIDI monitor circuits start with a conventional MIDI-IN stage consisting of a high-speed opto-isolator. The output of the opto-isolator is fed through two inverter buffers to provide the MIDI-THRU function and allow the unit to be inserted in series in the MIDI line to be observed.

A signal is also derived from these buffers to drive a pulse-stretcher. In this circuit we have used a 4013 Dual 'D'-Type Flip-Flop although any retriggerable-monostable circuit will suffice. The RC components R117/C111 (and R127/C121) can be adjusted to provide the desired 'LED ON' time. Short time constants for RC will allow the LED to flash for each MIDI data byte that is

detected whilst longer time constants will cause the LED to stay ON over several consecutive data bytes.

It is recommended that high-efficiency LED's be use for LED111 and LED122, the 4013 being capable of providing up to 10mA to each LED.

The complete assembly can be mounted in a small hand-held box complete with a battery housing offering the user a small portable MIDI tester.

