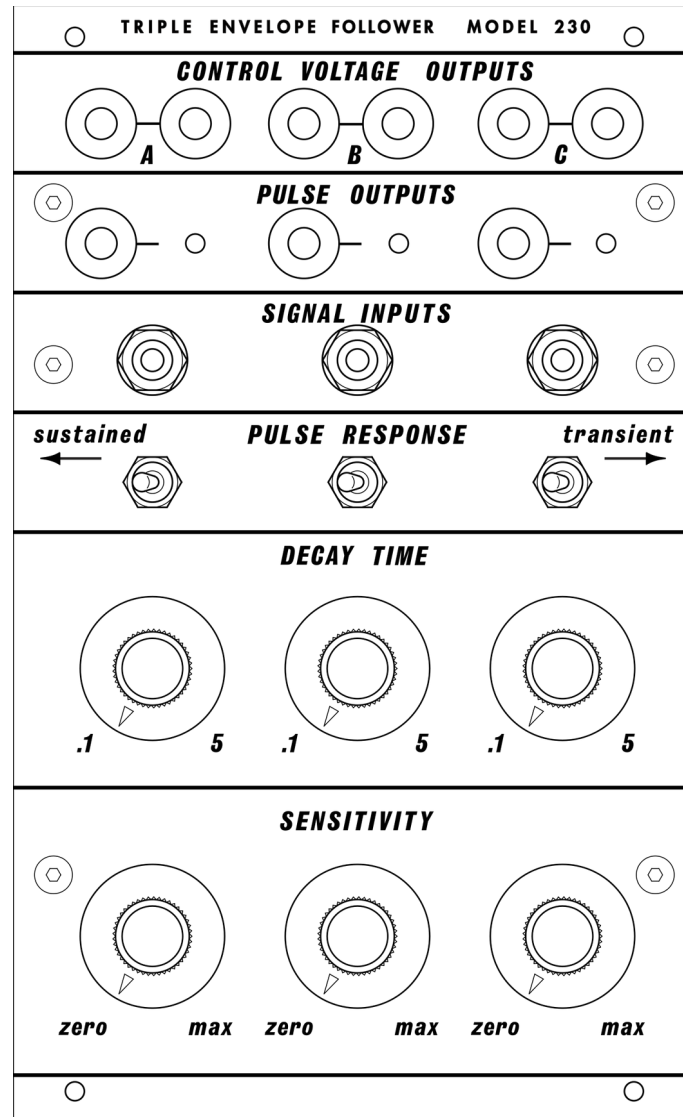


DA Dunnington Audio

230D Triple Envelope Follower



The 230D Triple Envelope Follower is designed to replicate the functionality of the Buchla 230A module using modern construction techniques and readily available parts. It is primarily based on the original circuit designed by Don Buchla, with the following additions/alterations:

- Proper current limiting implemented for pulse output LEDs, increasing LED life and preventing crosstalk between channels
- Pulse/gate output voltages adjusted to 10V/5V
- Pulse outputs are buffered, protecting the passive pulse generation network from the effects of loading when stacking one output to multiple destinations
- Pulse outputs are designed to allow stacking of multiple outputs to a single input, whilst also being able to drive a floating input low.

Build Notes:

*** The 230D is designed to be suitable for hand assembly, but it is not recommended as a "learn surface mount" starting point. You should at a minimum have a temperature controlled soldering iron with a reasonably fine point and good quality solder 0.5mm diameter or finer. Some form of magnification may be beneficial for placing/inspecting fine pitch parts. ***

It is recommended that the circuit board is populated in the following order:

- SOT-23 packages
- SOIC packages
- 0805 passives
- Trimmer potentiometers
- Tantalum chip capacitors
- Electrolytic capacitors
- Power wiring harness

Connectors should have their wire links attached and be mounted to the front panel, along with standoffs. Front panel potentiometers, switches and LEDs can then be loosely fitted into the PCB and the panel and PCB brought together before gently tightening the potentiometer and switch fixing nuts and soldering the panel components and connections.

Calibration procedure:

Equipment required:

- Power supply delivering +/- 15V and +12V, current limit at 20mA
- Signal generator
- DC Voltmeter
- Oscilloscope

1. Set front panel controls as follows:

- VR101/201/301 Sensitivity – Fully CCW
- VR102/202/302 Decay Time – Fully CCW
- SW101/201/301 Pulse Response – Transient

2. Set trimpots as follows (direction as viewed from the rear of the module):

- TR101/201/301 Offset – Centre

3. Apply power to the module and check for approx 10mA current draw on the +/- 15V rails, 0mA on the 12V rail.

The following steps should be repeated for each channel:

4. Allow the module to warm up. Connect the DC Voltmeter to the CV output of the channel under test and adjust the **OFFSET** trimpot for 0V DC at the output (note that the circuit is very sensitive, it may be beneficial to apply averaging to the reading).

5. Set the signal generator to produce a 1kHz, 1V peak to peak sine wave, connect this to the input of the channel under test, and monitor the CV output with the voltmeter. Adjust the **sensitivity** control for 10V DC at the CV output. Monitor the pulse output on the oscilloscope. Switch the pulse response to sustained and check that a brief ~10V pulse is produced before the output settles at a constant ~5V DC. Switch the response back to transient and check that the pulse output returns to 0V.

6. Monitor the control voltage output on the oscilloscope. Switch off the output of the signal generator and check that the fall time is approx. 100ms. Switch the signal generator back on, set the **decay time** control fully CW. Check that the CV output is still 10V DC and adjust the **sensitivity** if necessary. Switch off the signal generator and check that the fall time is approx. 5s.