

***DRAWMER***

**T102 INTERFACE**

**OPERATING INSTRUCTIONS**

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# INTRODUCTION

THE T102 INTERFACE IS AN 'ADD ON' UNIT WHICH CAN INCREASE THE ALREADY CONSIDERABLE VERSATILITY OF THE DRAWMER DS201 DUAL GATE, BUT MAY ALSO BE USED WITH OTHER TYPES OF EQUIPMENT. EXAMPLES INCLUDE:- DELAY LINES, AUTO-PANNERS, REVERB UNITS, DRUM SYNTHESISERS ETC.

THE T102 CONSISTS OF TWO IDENTICAL UNITS, EACH WITH A SIGNAL INPUT AND TWO OUTPUTS, PROVIDING A TONE BURST AND A SHORTING RELAY CONTACT. THE TWO CHANNELS MAY BE LINKED TO FURTHER INCREASE FLEXIBILITY, WHEREBY CHANNEL ONE CONTROLS THE START OF CHANNEL TWO. AUTO OR MANUAL RESET ALLOWS 'ONE SHOT' OR CONTINUOUS OPERATION OF EITHER CHANNEL.

LED'S PROVIDE VISUAL INDICATION OF TRIGGERING, PULSE STATUS, LINKING AND COUNT STATUS. A 'READY' LED IS ALSO INCLUDED TO SHOW THAT THE DEVICE WILL COMMENCE COUNTING ON THE NEXT TRIGGER PULSE.

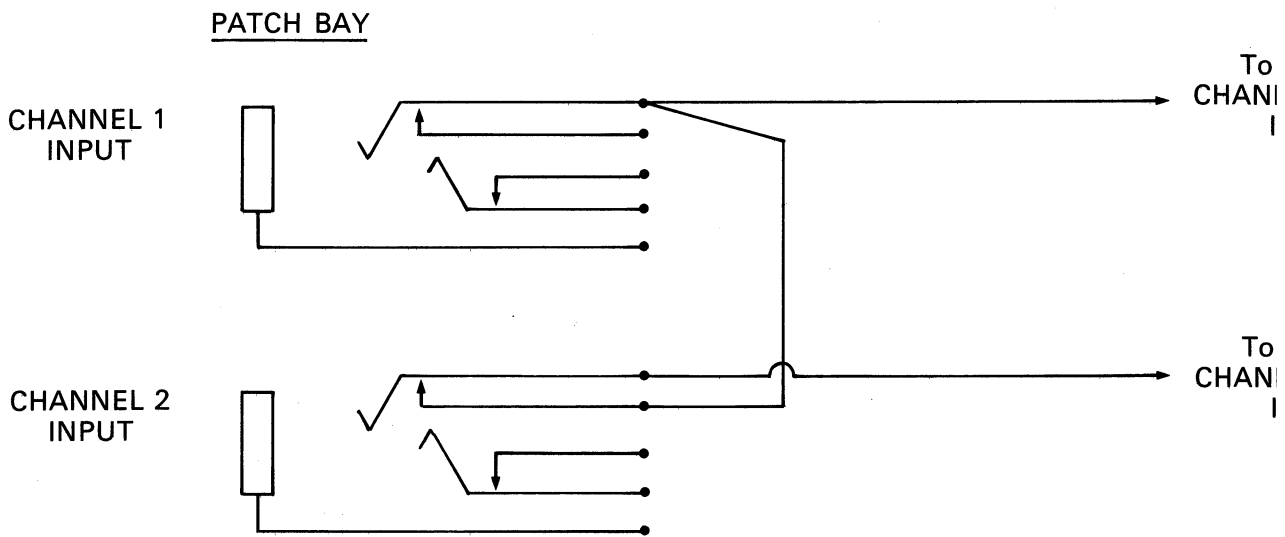
AN INVERT SWITCH REVERSES THE OUTPUT TO ENABLE EFFECTS TO BE SWITCHED OFF FROM A 'NORMALLY ON' STATE.

STABLE TRIGGERING IS ACCOMPLISHED BY MEANS OF A THRESHOLD CONTROL IN CONJUNCTION WITH A KEY FILTER.

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## INSTALLATION

The T102 internally connects channel one input to channel two input when no jack is inserted into channel two. When connecting to a patch bay, we suggest the following patch bay connections are made to duplicate this facility.



GROUND CONNECTIONS ARE OMITTED FOR CLARITY

## OPERATIONAL CONTROLS

**KEY FILTER.** This takes the form of a four position switch, giving the three most useful frequency responses necessary to provide stable triggering in the most difficult circumstances. The centre frequencies are 250Hz, 1kHz, and 5kHz. An additional position provides a flat response to the keying circuit. This may be desirable when triggering from signals which have already been gated, but have widely varying frequencies.

**THRESHOLD.** (-40dB to infinity) A continuously variable control which is set according to the level of the incoming signal. Each time a trigger pulse exceeds the threshold level, a LED flashes above the threshold control.

**SEQUENCE.** (sequence length, 1-10 pulses) This rotary switch controls the length of timing sequence before reset occurs. For instance, in the No. 8 position, the unit will reset after the 8th pulse.

**N.B.** The length of sequence should never be set at a value less than the output count, otherwise the unit will reset before an output pulse can occur; i.e. it will not produce an output pulse.

**OUTPUT.** (0-10) As well as the length of sequence, the unit needs to know on which beat the output pulse is required. In the 0 position, a pulse occurs on every beat, whilst 1-10 selects a single pulse, occurring on the 1st to 10th beat, but only once in each sequence. For example, with a sequence of 8 and output at 8, the unit will count 8 beats, then fire and reset.

**HOLD.** This controls the length of output pulse. In many cases, such as triggering a delay line, only a short pulse is required. However, a noise gate can be held on for up to 10 seconds using this control. When used with the DRAWMER DS201, which has hold and delay controls, a total hold time of 12 seconds can be achieved together with a delay of up to 4 seconds.

**AUTO/MANUAL.** In the MANUAL position, the unit counts one sequence only, after which, reset occurs and only the yellow trigger LED flashes. For continuous operation, switch to auto. The unit will continue counting through its sequence either until no more trigger pulses arrive at the input, or until MANUAL is selected.

**NORM/INVERT.** This effectively puts the unit into 'reverse'. In the INVERT position, the output pulse is normally on, but switches off every time the unit 'fires'. This is rather like the 'DUCK' function on the DS201 DUAL GATE.

**START.** Pushing this button enables the counter and resets to 0. A green 'ready' LED indicates that counting will commence on the arrival of the next trigger pulse. In MANUAL mode, the ready LED is extinguished after one sequence. The START button may be pressed if another sequence is required later.

**LINK.** The LINK switch couples the two channels so that when channel one 'fires', channel two is enabled and reset. It is therefore possible to create a more complex timing pattern, especially when the inputs are fed from different sources. In LINK mode, pressing the start button on channel one resets both channels but only enables channel one. Channel two is enabled only when channel one 'fires'. See examples.

**N.B.** The signal inputs are linked internally so that a signal applied to channel one is fed to channel two. However, if a separate signal is applied to channel two, the internal link is disconnected.

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## OPERATING THE T102

1. Connect input(s) to required signal source and output(s) to the equipment to be triggered.
  2. Before setting the key filter, take account of the type of signal input. For instance, on a percussive signal such as snare drum, the unit should be keyed on the fast rising edge of the waveform. The 1 kHz position is best for this application because it allows the capture of the fast rising edge of the drum signal, whilst at the same time filtering out excessive cymbal noise which could otherwise cause unreliable triggering.
  3. Advance the threshold control until stable triggering is achieved. This is indicated by a yellow LED above the threshold control.
  4. Set the sequence to the required length and the output so that the unit fires on the appropriate beat. Adjust the hold time to suit the application, then press the start button. The output from the unit is a sine wave at a level of  $-10\text{dBv}$  and frequency of 5kHz approx.
  5. It should be remembered that pushing the start button performs two functions. The unit is reset to a zero count and enabled, ready to commence counting on the next trigger pulse. When using AUTO, it may be necessary to cue the start of the sequence at some point later in the track. In this case, count through one sequence in MANUAL so that reset occurs and counting stops. Then switch to AUTO and press the start button when required. Counting will continue until either MANUAL is selected or the trigger pulses stop.
  6. As long as the timing sequence (from start to reset) is less than 10 seconds and AUTO is selected, it is possible for the unit to switch on and stay on for the remainder of the track. This is done by simply increasing the HOLD time to maximum.
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## LINKING

Use of the LINK greatly increases the potential of the T102. It enables channel two to commence counting only after channel one has 'fired'. This enables channel two to be operated in MANUAL whilst channel one is in AUTO. Channel two will then perform one sequence, then wait until channel one 'fires' again before repeating the process. The following example produces a very 'usable' pattern which may be modified to suit the particular application. We have assumed a simple drum pattern consisting of four crotchet bass drum beats per bar, with semi-quaver beats on a closed Hi-hat; i.e. four Hi-hat beats for every bass drum beat. Set the unit as follows:-

### **CHANNEL ONE (BASS DRUM)**

KEY FILTER ..... 1kHz Threshold as required.  
SEQUENCE ..... 8 Loops every two bars.  
OUTPUT ..... 4 Fires channel one on the 4th beat of the first bar.  
LINK ..... ON  
AUTO/MAN ..... AUTO

### **CHANNEL TWO (HI-HAT)**

KEY FILTER ..... 5kHz Threshold as required.  
SEQUENCE ..... 4 Counts four beats, then resets.  
OUTPUT ..... 0 Fires on every beat.  
AUTO/MAN ..... MANUAL

The resulting output consists of a pulse from channel one on the fourth beat followed by four pulses on channel two. This process repeats every two bars. Outputs may be made to trigger noise gates, delay loops, auto-panners etc.

An interesting variation on the above example would be to INVERT channel one and set the HOLD so that the duration is the same as the 4 count on channel two. In this case a signal would be removed by channel one while channel two completes its sequence. If there are only three bass drum beats per bar then channel one SEQUENCE would be set to 6.

It is also possible to obtain a count of up to 100 by connecting the output of channel one to the input of channel two, with the link off and channel one in AUTO. If channel one fires on the 10th unput pulse, channel two will count one for every 10 input pulses. If channel two is set to fire on the 10th count this will require 100 input pulses. This process will repeat if channel two is switched to AUTO.

The above examples provide a suitable starting point from which many variations are possible.

A second output on each channel provides access to a pair of isolated relay contacts which may be used instead of a foot switch or other type of remote switch. A voltage pulse of up to 15 volts is possible from the switch output. However, this requires a small internal modification which must only be carried out by an approved DRAWMER dealer (see notes).

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## TECHNICAL SPECIFICATIONS

<b>KEY FILTER.</b>	Switchable 250Hz, 1 kHz, 5kHz or flat.
<b>THRESHOLD.</b>	Variable infinity to -40dB.
<b>HOLD.</b>	Variable 100mS to 10 seconds.
<b>OUTPUT 1.</b>	Tone burst 4.5kHz at -10dBv (See Notes)
<b>OUTPUT 2.</b>	Switch contacts. (See Notes)
<b>POWER REQUIREMENTS.</b>	200-250v or 100-125v 50/60Hz 3VA
<b>FUSE.</b>	32mA anti-surge at 230v or 64mA at 110v.
<b>CONSTRUCTION.</b>	Standard 1u rack mounting case. Depth 100mm.
<b>WEIGHT.</b>	2kG.

## NOTES

Certain modifications may be carried out to alter the outputs.

The TONE output may be increased in level although this may cause crosstalk in other equipment due to the frequency of the tone.

The switch output (normally open contacts) may be altered to 'normally closed' or a voltage pulse up to +15 volts.

ANY SUCH MODIFICATIONS MUST BE CARRIED OUT BY AN APPROVED DRAWMER DEALER. DRAWMER WILL ACCEPT NO RESPONSIBILITY FOR ANY DAMAGE CAUSED BY INCORRECT MODIFICATION.

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