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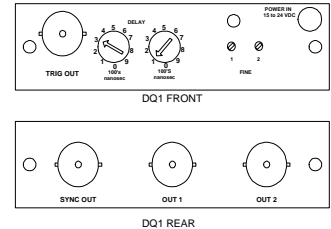
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MODELS DQ1

Delay/Pulsewidth Module DATA SHEET 776

MODEL DQ1 DUAL CHANNEL DELAY GENERATOR

- ◆ 2 CHANNEL INDEPENDENT DELAY 1 usec max.
- ◆ SERIES MODES TO 2 usec DELAY
- ◆ PULSE FOLLOWER DIFFERENTIATOR MODE
- ◆ PULSE WIDTH MODE <10nsec-2usec
- ◆ DELAY and PULSE WIDTH MODES



The electronic delay, Model DQ1 provide delays that are useful in electro-optic applications where the user must incorporate delay functions associated with timing into the overall system requirements. This delay generator can provide a variety of timing waveforms as can be seen on waveforms, figure 3. A sync trigger is provided and occurs at the same time as the input trigger leading edge. Two outputs are provided, Out 1 and Out 2. Out 1 provides a 30-1000 usec delay in most cases, while Out 2 is more flexible in the range of output delays and pulse widths. In addition, the unit can provide a differentiation of an input pulse width which is useful for drivers that need leading and trailing edge triggers.

The DQ-1 provides a stable delay that consists of two digital set switches of 1000 nsec each, plus 2 analog delays from approximately 30 nsec to over 100 nsecs. The combination of these three settings enables the user to delay a TTL input signal from approximately 30nsec through over 1 usec utilizing stable electronics. The FRONT panel of the DQ-1 has an input BNC used for triggering the delay. There are two digital thumb-wheel switches, one each of the 1000 nanosecond delays, in steps of 100 nsecs (0-900 nsec) as well as, an analog adjustment for the 30 nsec through 100+ nanosecond delay. A power connector is also located on the front panel. The rear panel has a sync output BNC connector and the 2 output (delayed) BNC connectors.

The DQ-1 the input TTL signal is delayed by a precision analog monostable. The output of which is connected to two cascaded digital counters. A trigger input activates the circuitry. These counters are actually 2 digital comparators that are set by 2 miniature digital thumb-wheel switches to set the required delay. At that point two delayed pulses are produced. The two dividers (like above) are activated from one of two monostable sections from a common trigger or input pulse. As a result, each of the two channels produces a separate delayed pulse at each of the outputs (OUT 1 or OUT 2) at the output rear panel BNC's. connectors on the rear panel of the unit.

There is a common internal +5VDC power supply in each delay circuit. The input to this regulated +5VDC supply is an external +15 to +24VDC source connected to the DQ1 unit via the front panel connector. The DQ1 delay unit operate from +15-24VDC at a current of 250mA.

SPECIFICATIONS

MODEL DQ1:

Input Trig:	Single level 3-5volt input, 50 ohms input impedance
Out 1 and 2, Sync out:	Dual channel, TTL compatible outputs 3 volt/50 ohms.
DELAY:	To 990 nsec DIGITAL, in 100 nsec steps, ~ 30nsec - 100+nsec, ANALOG
Input pulse width range:	10 nsec minimum.
Jitter:	<1nsec
Power requirement:	DC volts: 15 ~ 24 @ 250 mA (Max).
Size:	2.54cm (1 inch) x 6.35cm (2.5 inch) x 17.145cm x (6.75 inch) (HxWxD).

Output Modes:

Parallel mode:

channel delays are independent 30-1000nsec

Series mode:

Out 1 is independent

Out 2 has channel 1 delay added to channel 2 delay

Pulse width mode:

unit creates a pulse whose width can be <10nsec to 1000 nsec, not dependent on input trigger width. The delays of each channel add to the leading and trailing edge thus being able to modify the pulse width of Out 2.

Pulse Differentiation mode:

unit creates a pulse whose width can be <10nsec to duration of trigger input high.

The delays of each channel add to the leading and trailing edge thus being able to modify the pulse width of Out 2.

FIGURE 1
DQ1 TIMING DIAGRAMS

