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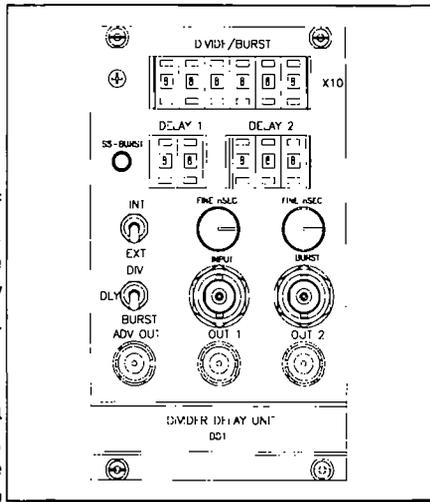
MODEL DD1 DIVIDER DELAY UNIT DATA SHEET 734

MODEL DD1

DIVIDER DELAY PLUG-IN FOR PULSE PICKER SYSTEMS

Model DD1 count down electronics is a high speed divider card capable of generating **two** independently delayable trigger pulses from a clock train input. (The clock may be an ext 1-250 MHz clock or the internal 250MHz clock). The output rate is set accurately by **six** decade thumb wheel switches while the delay is set by a **two** decade range. The mode-locker input is divided down an ECL divide by **ten** prescaler.

Model DD1 has **three** different modes of operation. The divide mode creates a continuous stream of pulses at a repetition rate equal to the clock frequency, divided by the digits on the preset switches. The ready mode allows the unit to be programmed as to a single shot or a burst of N pulses appearing once every **ten** clock cycles. The unit may be triggered by a manual burst switch or via an external burst input. It has **two** independently adjustable, high resolution precision delays. The standard range of these **two** delays is **99 & 999** nsec with an infinitely resolvable range of **30** nsec. For simple single pulse extraction, only output 1 is used. For double pulse applications as in regenerative amplifiers, one precisely delayed pulse is to carry out the injection seeding, the other pulse is used to extract the amplified pulse after a sufficient build up time. The **two** output delayed pulses may be also used to trigger **two** fast HV pulses (such as the **HVP-590-D** or **525-D drivers**) from a differential Pockels cell switch out to create a fast optical gate. Typical jitter is less than 100 psec. On Delay and Burst Modes with Ext clock and arbitrary trigger jitter is +/- 1/2 clock period.



The advance output provides a convenient trigger pulse, absent from any programmed delay. The output trigger levels are three volts into 50 ohms. The **Model DD1** unit is compatible with all of Quantum Technology's " Pulse Picker " systems. (Please see Data Sheets 727, 732 and 739). This Plug-In may be purchased as part of a complete system with a " Pulse Picker ", or as a stand alone system in a small "S" Euro-Card cabinet with a power supply, or as a Plug-In module only for integration in other Quantum equipment. Other Delay options are available. (Please inquire).

SPECIFICATIONS:

Input Trigger Voltage	TTL
Clock Frequency EXT, INT	200 MHz (to 1 MHz typical) 0.1-1vpp, 250 MHz int effective clock
Output Rep Rate Range	10 MHz to 10 Hz. (at 100 MHz clock)
Delay Range (Delay 1)	0-99 nsec (Digital), 30 nsec (Analog)
Delay 2	0-999 nsec (Digital), 30 nsec (Analog)
Burst or single shot capability	Manual or on command
Output pulse levels into 50 ohms	3 Volts., ADV, Out 1 & Out 2
Output pulse widths (typical)	50 nsec (Out 1), 50 nsec (Out 2)
Size:	3"x5"x8.5" Eurocard.
Modes (where N = 999999x10)	Divide Ext clock: ext clk ÷ N Int clk: 250 MHz ÷ (Nx10) Range: F out = 1 MHz - 10Hz with ext. 100 MHz clk Int clk jitter +/- half clk, Ext clk +/- 200 psec Delay: by N clk cycles Range: 30 nsec - 40 msec, 40 nsec/step int clk 30nsec - 100 msec, 100 nsec/step ext clk Ext clk jitter +/- half clk, Int clk +/- 1nsec
Jitter:	Burst: 1-999999 Burst @ frequency of CLK/10 Ex: 2 = 2 pulses at 25 MHz (int clk) or 10 MHz (100 MHz Ext clk) Ext clk jitter +/- half clk, Int clk +/- 1nsec
Jitter:	
Jitter:	