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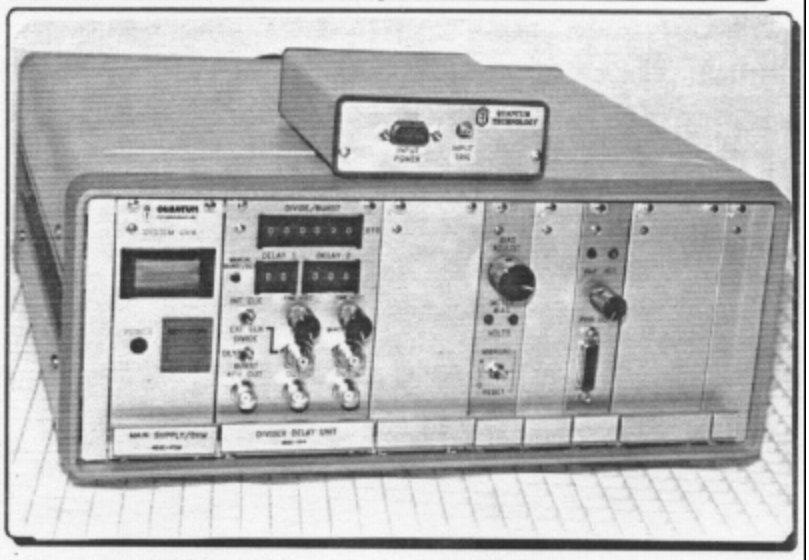
MODEL 301
Pulse Extraction System
DATA SHEET 727

PULSE EXTRACTION SYSTEM
MODEL 301

- **High repetition rate up to 150 KHz**
- **Fast rise and fall times 3.5 nsec typical**
- **Maximum trigger rate up to 200 MHz**
- **Wide range of count down adjustability**



The Model 301 Pulse Extraction System is designed for the use of pulse selection and extraction of visible mode locked laser beams. The system includes **Model 26** modulator, which consists of four 45° X cut transverse field **ADP** crystal rods. The selection of a single mode- locked laser pulse train can be achieved in the visible range from 400 nm - 800 nm. The Model 27 modulator uses four 45° Z cut transverse field **D-KDP** crystal rods, and is useful for the selection of laser pulse train from 800 nm to 1100 nm. Custom UV option from 200 nm to 400 nm is also available, employing BBO crystals (Data Sheet 719)

The **Model 301** driver accepts a high frequency level signal from a mode locker output or from a photodiode and divides it down by a factor 10 to 10,000,000 depending upon the repetition rate desired for extraction. The delay pulse then fires an avalanche transistor chain for gating the optical modulator. Fast rise and fall times are guaranteed by avalanche circuits driving a low 16 ohm transmission line electro-optic modulator for reduced RC time constant. Precise stable time is fixed by setting the desired propagation delay with digital thumb wheel setting of 1-99 nsec resolution and an analog setting of nearly infinite resolution. Contrast ratios of 500:1 of more are obtainable. A high performance, removable Glan Laser Polarizer with exit port is mounted on the modulator to convert the birefringence modulation to amplitude modulation. The standard optical transmission that extends from 400 nm to 800 nm will satisfy most visible applications while Model 301, option 27, with its broad 400 nm to 1100 nm range will cover an even wider range of applications. The modulator bias voltage is easily set by a 10 turn front panel knob with digital voltage display.

MODEL 301 SYSTEM SPECIFICATIONS	
Rise and fall times	Less than 3.5 nsec
Maximum rep rate	150 KHz
Gate width	7 nsec
Maximum trigger rate	200 MHz
Count down range	10-10,000,000
Output rate at 100 MHz clock	150 KHz-10 Hz
Burst rate	single shot-150 KHZ
Minimum trigger level	200mV @ 50 ohms
Output jitter	< 1 nsec
Sync output	2 V @ 50 ohms
delay range digital/analog	1-99 /5 nsec fine
delay resolution	infinite
DC bias range	+/- 300 V
Power requirement	100/117/220 VAC 110 W, 50/60 Hz

EOM SPECIFICATION	301-26	301-27
E/O Modulator	Model 26	Model 27
Material	ADP	DKDP
Spectral transmission	300 -800 nm	400-1100 nm
$V_{\lambda/2}$ (633 nm)	115 V	115 V
$V_{\lambda/2}$ (1064 nm)	N/A	180 V
Useful aperture	2.5 mm	2.5 mm
Transmission (633 nm)	85 %	85 %
Contrast ratio @ 633 nm	500:1	500:1
AR coating	450-650 nm	633-1060 nm
Optical length	200 mm	200 mm
Resonances	none	discrete, narrow
Optical power handing	> 3.5 W/mm²	> 3.5 W/mm²
Rf Connectors	2 SMC,	2 SMC,
Bias connector	1 twinax	1 twinax