

Laser Pulse Selection Systems



- Select from single pulse to 30MHz for mode locked lasers
- Rep. Rate: up to 30MHz
- Transmission: >85%
- 18ns min. pulse width, measured at zero
- No limit on pulse width
- Rise/Fall Time: 8ns
- Centre in and Centre out operation. No offset or angular change
- No spatial dispersion

For many years Lambda Photometrics have represented Conoptics Inc. in the UK and Ireland. Conoptics manufacture a line of solutions for laser modulation, beam deflection, noise reduction and optical isolation, together with associated driver electronics and accessories.

Conoptics has developed a complete line of Pulse Selection Systems for use with Ti:Sapphire, YAG, YLF and OPOs from 350nm-to 1600nm. Customised options are also available.

The Conoptics Pulse Selection System is designed to interface with applications utilising pulsed lasers up to

100MHz and different wavelength ranges are accommodated by selecting the correct modulators from the table below.

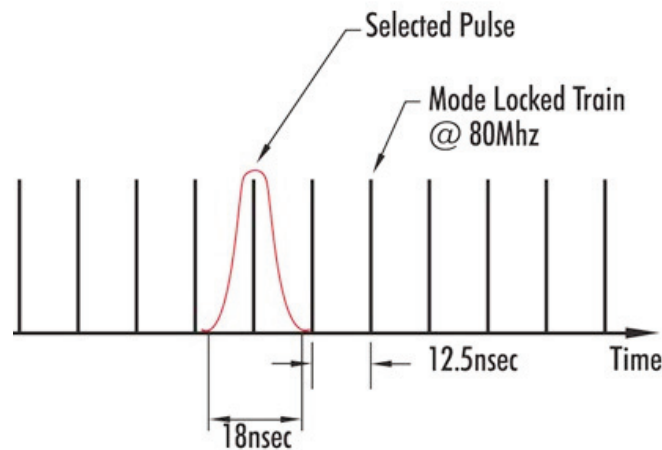
A synchronous countdown unit, the **M305**, receives the free-run laser reference frequency output and allows the user to divide this pulse rate by any integer from 2 to 1,000,000. Pulse bursts, single shot and free-run selection is also available.

The pulse-pick signal from the **M305** is used as a modulation input to the **M25D** digital driver which supplies the required drive voltages to the modulator cell.

Associated Electro-Optic Modulators

Ti:Sapphire(350nm-to-500nm)	Model 350-105 KD*P Series Modulator
Ti:Sapphire(700nm-to-1064nm)	Model 350-160 KD*P Series Modulator
OPO™s (1000nm-to-1600nm)	Model 360-120 LTA Modulator
YAG Laser (1064nm)	Model 360-80 LTA Modulator
YLF Laser (1300nm)	Model 360-120 LTA Modulator

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Associated Amplifiers

Model	Bandwidth	Rise/Fall Time	Max. Voltage	Drive Configuration	Output
25D	DC-to-30MHz	8ns	175	100ohms B.L.	Digital
50	DC-to-50MHz	7ns	90	50ohms B.L.	Analogue
100	DC-to-100MHz	3.5ns	90	50ohms B.L.	Analogue
307A	DC-to-50KHz	8ns	800	LC	Digital

Associated Countdown Electronics

Model 305 Synchronous Countdown System:

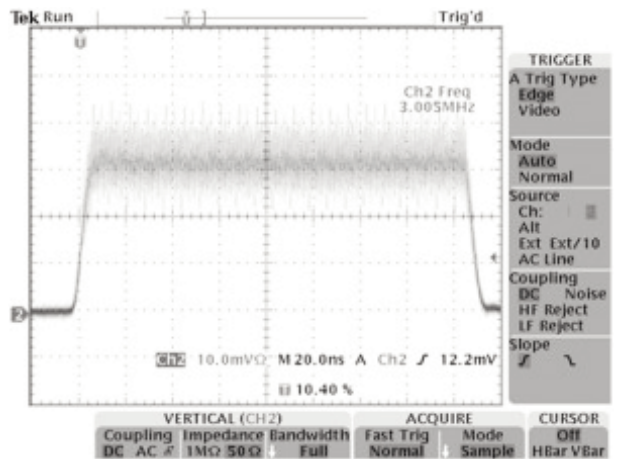
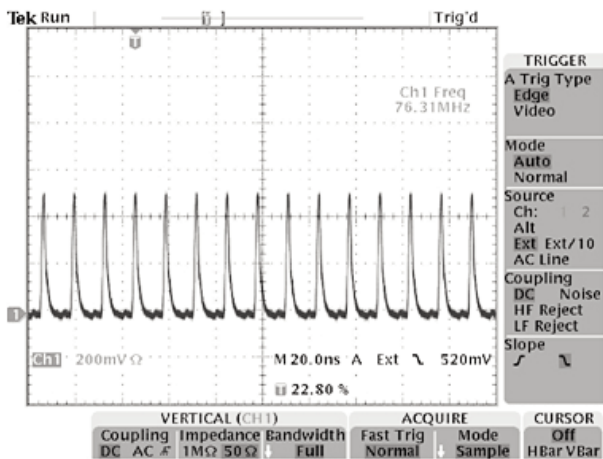
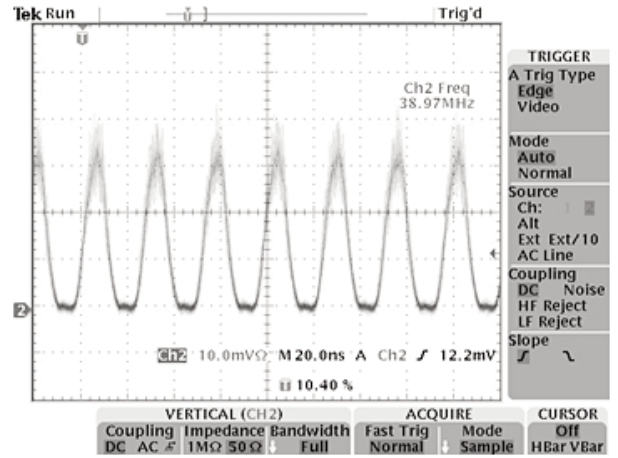
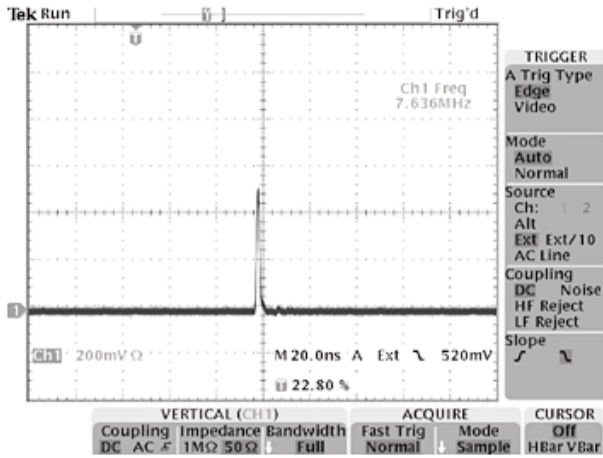
Input Clock Rate	Mode Locker Input, 10MHz Min, 70MHz Max External Input, 10Hz min, 140MHz Max
Countdown Range	$F(\text{clock})/2$ min, $f(\text{clock})/1 \times 10^6$ max
Input-Output Jitter	<100ps, any count
Input Requirements	1. Mode Locker Input sine wave, -6dbm min (112mv RMS), +15dbm, ax (1.3v RMS), Zi=50ohms 2. External Input – 100mv peak min, 1.5ns min pulse width. +/- 2v peak max. Zi=50ohms 3. Gate Input = TTL levels, min width one clock period. Burst ends one count after negative edge of gate input signal. Zi=50ohms 4. Single Shot Input = TTL levels, 10ns min pulse width. Zi=50ohms.
Delay	Variable – 0-to-8ns, 7bit digital delay line. 62ps min resolution. Controlled by linear, single turn front panel control. Fixed – 8ns Switch selectable on front panel (in/out)
Outputs	TTL – 50 ohm line driver, Voh type 2.5v into 50ohm load. Pulse width 1us type (Pulse width is set internally by discrete components). Tr, Tf, <3ns type Analog – TrTf, <2ns, Unipolar 0-to-+1v fixed amplitude. Designed to drive DC coupled 50ohm load to ground. Pulse width – 8ns, set internally by 50ohm coax delay line. Sync – 50ohm TTL line driver, 1.3v into 50ohms. Negative edge.
Threshold Adjustment	+/- 200mv applied to input comparator via single turn front panel control.
Input Power	85-250VAC, 47-63Hz, 50W
Dimensions	133 H x 430 W x 343 D mm. Rack Mountable. 5.25" x 16.88" x 13.5"
Weight	Net 6.8Kg, (15lbs)

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Detected Output

Images below taken from Mira900 Ti: Sapphire 80MHz and Conoptics Model 25D Driver, Model 305 Synchronous Countdown System and Model 350-160 EOM.

image taken at 514nm



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