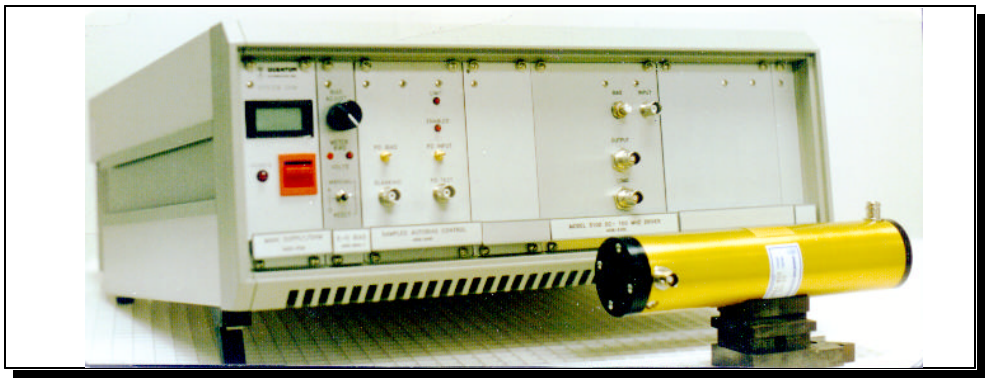
QUANTUM TECHNOLOGY, INC.
108 Commerce St., Suite 101, Lake Mary, Florida, 32746-6212, USA
FAX 407-333-9352 PHONE 407-333-9348 TOLL FREE 800-232-4291
EMAIL staff@quantumtech.com INTERNET http://www.quantumtech.com

ANALOG EO SYSTEMS

Models 3030C, 3030, 3050, and 3100

DATA SHEET 724



E. O. MODULATION SYSTEMS

Quantum Technology, Inc (QTI) designs and manufactures Electro-Optical Modulation Systems for modulating laser beams with the highest degree of efficiency. These systems are available with full accessories to accomodate turnkey applications by interfacing to existing laser systems without additional electronics. They feature highest bandwidths commercially available, broad optical range from UV to Mid-IR, fast rise and fall times, continuously adjustable gain, high optical power handling capability, and completely automatic operation.

The systems are:

1) Model 3030C (DC - 10 MHz)
2) Model 3030 (DC - 25 MHz)
3) Model 3050 (DC - 50 MHz)
4) Model 3100 (DC - 100 MHz)

Other low frequency Model HVA-25K (DC-25KHZ), Model HVA-100K (DC- 200 KHz), Model HVA-1M (DC-1MHz) and higher frequencies Model 3200, Models 3500 (4MHz-520 MHz) and 3101 (1MHz-1000 MHz) are described on Data Sheets 765, 750, 758 and 747 respectively. Quantum Technology designs and manufactures Electro-Optical Modulation Systems for modulating laser beams with the highest degree of efficiency.

Model	Output(Vp-p)	Bandwidth (3dB)	Used With Modulator*	Rise/Fall-time	Modulation Depth
3030C	150	DC to 10MHz	Model 20 (ADP)	35nsec	100% to 800nm
3030	150	DC to 25 MHz	Model 22-100 (ADP)	14nsec	100% to 800nm
3050	110	DC to 50MHz	Model 22-50 (ADP)	7nsec	100% (514nm), 95% (633nm)
3100-2	90	DC to 100MHz	Model 22S (ADP)	3.5nsec	100% (514nm), 90% (633nm)

* These modulators (ADP) are shown as an example. Other modulators may effect bandwidth.

Specifications for Models 3030C, 3030, 3050 and 3100

Standard Aperture	2.5 mm
Extinction Ratio	200:1 (488 nm), 500:1 (633 nm)
Transmission	85 % (Modulator & Polarizer)
Driver Gain	40 db
Input Signal	1volt p-p @ 50 ohms
Output Connectors	2 -Triax for RF & 1- Twinax for bias 1 -Triax for RF (3030 only)
Bias Supply	Continuously adjustable from 0 to +\-300 VDC
Cable Length	2 meters (Driver to Modulator)
Dimensions & Weight	
Modulator	1.97" Dia x 9.15" L incl. output polarizer , 2 lbs typical
Driver	19" W x 7" H x 18" D, 60 lbs.
Input Power	100 to 240 VAC, 60 Hz, 200 watts

E. O. MODULATION SYSTEMS

These systems employ state of the art RF MOS FET technology. There are many unique design features such as field replaceable plug-in cards for easy and quick upgrades, for expanding functions that include pulse picker timing, cavity dumping, and regenerative seeding, high voltage high speed switching and laser noise suppressor modules. The system integration is done through a common back plane. There are many options such as Auto Bias Control, either sampled or continuous. A variety of optical accessories are also available. The outstanding feature is that QTI has unique expertise in the growth of crystals of ADP, AD*P and KD*P that are grown as well as fabricated in Quantum labs to exacting specifications for designing modulators. QTI is the *ONLY* company with this total capability from crystal growth to engineering design and system manufacturing**.**

Electro-Optical (E-O) Modulation Systems from Quantum Technology provide the highest degree of efficiency available for modulating laser beams. A Quantum System is economical because it is a complete system - no additional optics are needed and no expensive engineering time is required to make the modulator compatible with your system. It's all there! Simply plug the modulation system into your laser system, make a few simple alignments (carefully detailed in the instruction manual), and power up! The modulator drivers are solid state, direct-coupled broadband amplifiers which amplify low-level signal inputs to the levels required to drive the transverse field light modulators employed in Quantum E-O Systems. The modulator drivers are powered from integral regulated supplies and utilize a variable bias voltage in series with the driver output to precisely adjust the modulator operating point. The bias voltage is regulated to better than 0.l percent for line variations between 105-125 VAC, and is continuously adjustable from 0 to +/- 300 VDC. Automatic Bias Control (ABC) options are available.

ADP modulators for visible (400-800 nm) range are described in data sheet 719. KD*P modulators for near IR (800-1100 nm) are described in data sheet 752. LTA for mid-IR (800-4000 nm) are described in data sheet 741. Custom UV modulator (200-400 nm) with BBO crystals is available. (Aperture 1 mm). The modulators used in Quantum E-O Systems consist of crystals utilizing the transverse Pockels effect. Precisely oriented, the crystals are mounted in thick-walled aluminum cylinders to minimize thermal gradients. Low absorption index matching fluid, combined with a fluid path length of less than 2 millimeters, ensures high optical power transmission capability with no mode distortion or blooming. IR modulators of Lithium Tantalate, LiTaO3, are AR coated for specific wavelength ranges, typically 700-1064nm or 1300-1600nm.(Data Sheet 720 and 741). UV option is also available down to 300nm with KD*P crystals (DS 752). BBO crystal modulators extend the UV range down to 200nm.(DS 718).

You'll find many advantages inherent in Quantum Technology's Electro-optical systems: bandwidths from DC up to 100 MHz (Model 3100 system), rise and fall times as fast as 3.5 nanoseconds, 0-40dB continuously adjustable gain, high extinction ratio up to 500:1 and continuously adjustable bias supplies from 0 to ± 300 VDC. In addition, you'll get high optical efficiency with broad optical bandwidth from, 300nm to 4000nm with standard ADP crystal modulators.(DS 719).
QTI's Electro-Optical Modulation Systems are ideally suited to wideband modulation of video information in laser imaging recorders; for use as high-speed light shutters for digital information recording; modulation and optical data links; light modulation for large area display systems; and phase modulation and FM spectroscopy. So when it comes to communications systems, image recording systems, military or scientific projects, compare a QTI Electro-Optical Modulation System with any other system. We are sure QTI's systems will deliver proven excellence in all your E-O modulation requirements.