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SERIES 1147 - RTP
ELECTRO-OPTIC MODULATORS & Q-SWITCHES

- **No Piezoelectric Ringing**
- **Low voltage requirements**
- **High Damage Threshold**
- **Ideal for high rep rates**
- **Long Pulse Widths**
- **Non-Hygroscopic RTP**
- **Thermally Compensated crystal pair.**

RTP (rubidium titanyl phosphate - $RbTiOPO_4$), used in the company's 1147 Series Pockels cells, is a very desirable crystal material for electro-optic modulators and Q-switches. It has one major over KD*P and Lithium Niobate RTP exhibits virtually no piezo-electric effect with electrical signals. There is no ringing superimposed on the transmitted optical beam passing through the crystal. Pockels cells EOM and Q-switches made with RTP can be utilized with high power lasers operating at high repetition rates.

Freedom from piezoelectric ringing enables the use of RTP devices in high repetition rate mode locked laser pulse extraction, laser pulse slicing, chopping and gating systems as well as in Q-switching applications. Tests conducted at up to 100 kHz reveal no ringing in the optical waveform.

RTP has a useful optical wavelength range from 400 nm to 3000 nm. Transmittance, in the 475 nm to 2100 nm range, with hard, "V" type high efficiency Anti-Reflection coatings is 98.5%. Standard AR wavelengths, are 1064 nm, 532nm, 633nm, 700-900 nm, 1550nm, and 2050nm. A-R coatings for other wavelengths are available.

Typical extinction ratios of RTP devices are greater than 500:1 (>27 db) measured at 1064 nm. Wavefront distortion is <1/8 Wave. Thermal stability is excellent over a broad temperature range. The electro-optic coefficient for RTP is temperature insensitive from about 10 ^{0}C more than 50 ^{0}C. RTP crystals are not hygroscopic, in an appropriately clean, dust-free, enclosure, all devices within the series be used without protective windows.

Operating voltages for the 1147 Series are much lower than those experienced for KD*P and BBO in the same aperture sizes. A typical device (Model 1147-6-1064) with a 5.5 mm clear aperture and AR coatings for 1064 nm has a half wave retardation voltage of 2400 Volts. Capacitance is also low; for the Series 1147, it is about 5 picofarads. RTP has a high (>10^{11} Ohms) resistivity and does not exhibit "gray track" laser damage.

Fig 1: Model 1147-8-1064 (Hood end plate shown)

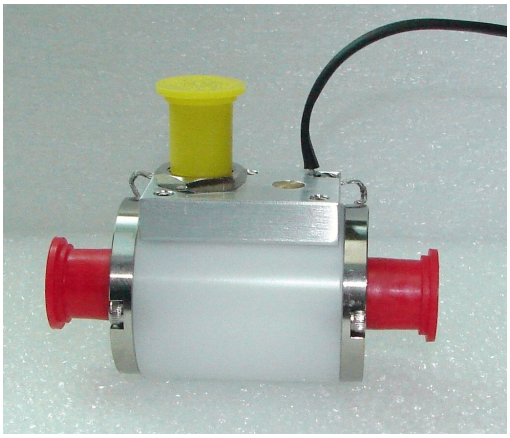


Fig 2: Model 1147-4-1064-MHV *NEW*

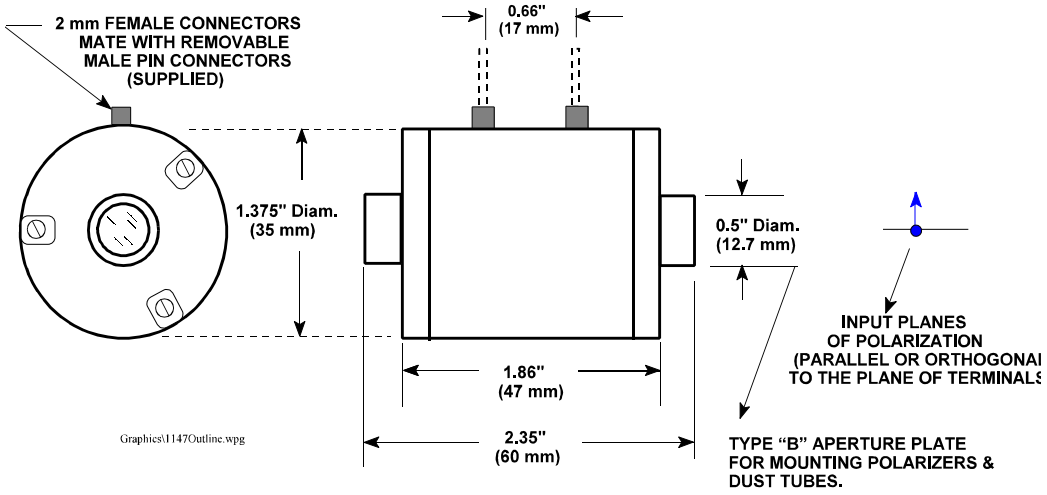
The 1147 Series has an industry standard 35 mm diameter, convenient for optical mounts. The size is compatible with the company's Series 1059 KD*P devices and may be easily replace them in most of the company's E-O systems.

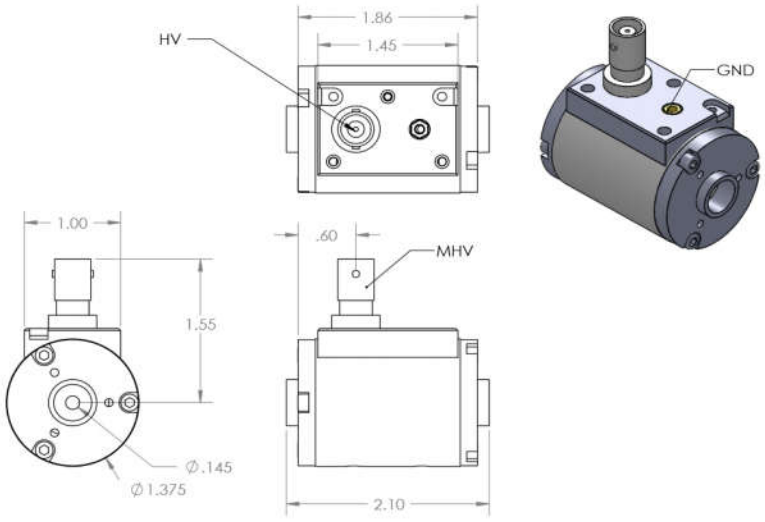
Series 1147 Pockels cell (EOM) are most popular in following driver systems;
Models 5100ERW series high rep rate 100 kHz Laser Pulse Picking, Extraction and Chopping Systems,
Model 5250q Q-switching Systems 10-300 kHz.
Model 8025RS HV Generator for high duty cycle and long pulse widths and CW laser applications.

OPTIONS:
- Flat endcap "-A" aperture plates.
- MHV connection, discuss with factory.
- No protection windows lowest IL.
- Miniature "U" tray platform mount & reduced crystal length.

1147 SERIES - NOMINAL SPECIFICATIONS

Model Number		1147-4	1147-6	1147-8
Aperture Diameter, mm		3.5	5.5	7.5
Crystal Material		RTP (rubidium titanyl phosphate - $RbTiOPO_4$)		
Peak Optical Power Density Capability (Uniform Beam, no Hot Spots)		750 Megawatts/cm^2 for pulses <10 ns wide 10 Gigawatts/cm^2 for pulses <200 ps wide		
λ Range for Peak Power Density		500-2100 nanometers		
Transmission (Narrowband AR coatings)		>98% from 500 nm to 2090 nm		
1/2 Wave Retardation Voltage, Volts	@ 633 nm	950	1100	1900
* 700-900 nm Standard	@ 800* nm	1200	1800	2400
Available 1030nm	@ 1064 nm	1600	2400	3200
Available to 1650nm	@ 1550 nm	2350	3500	4700
Available 1950-2100 nm	@ 2050 nm	3100	4700	6200
Extinction Ratio, with 90% Aperture Beam		>500:1 at 1064 nanometers (>27dB)		
Rise Time, picoseconds.		<350		
Capacitance, picofarads pF (4mm)		~5		
Weight, grams (approximate)		125	125	130



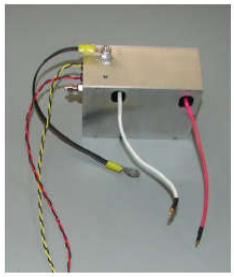


Model 1147-4- λ -MHV (NEW 2017)

5055SC-A 2kHz, 5KV

5056SC-A-8, 5056SC-A-5
5kHz, 8KV & 5KV models

5056D-5 & 5056D-8 w/ Trigger Delay
3kHz/8KV, & 5kHz/5KV



5055SC-B OEM Options 1.5kHz, 5KV

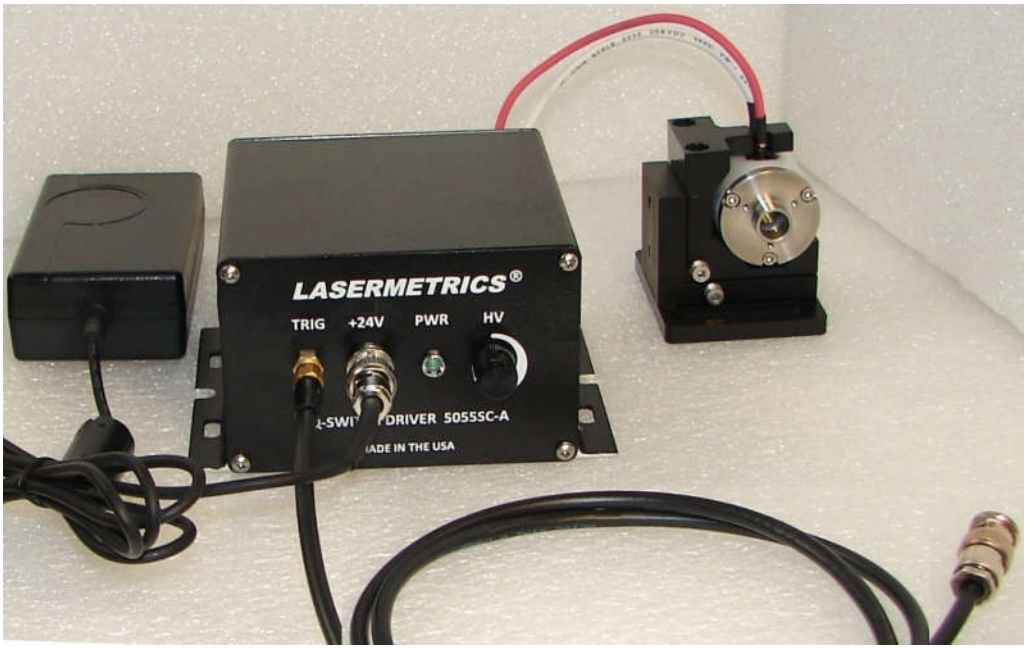
5250q-30 System or Pulse Module
30kHz/1.5KV

5048SC Series EMI Shielded Enclosure OHA
5048SC 4kHz, 10KV
5048SC-6, 5 kHz, 6KV
5048SC-3, 10kHz, 3KV

5300QW-300 300kHz/3KV

5250QW-40 & 5250QW-100
30kHz/3.5KV & 100kHz/2KV

REVIEW OUR FULL LINE OF Q-SWITCH DRIVERS & PULSE PICKERS



TYPICAL Q-SWITCH SYSTEM : Q-switch driver with internal HVPS, Tilt Gimbal MG-CL38, Pockels cell and Model MW4024F AC/DC power supply.