KTP EO Q-Switch

KTP (Potassium Titanyl Phosphate) crystal is an excellent electro-optic material with wide applications (such as Q-Switch, cavity dumpers, pulse picking, etc.), suitable for the areas of aerospace, defense, medical, industry, civil and scientific research.

KTP EO Q-Switch is designed based on the thermally compensated double-crystal structure, in which two matched crystals are placed in line of the propagation axis(X or Y) with one rotated by 90 degrees, such that the input beam is polarized along the diagonal of the face.

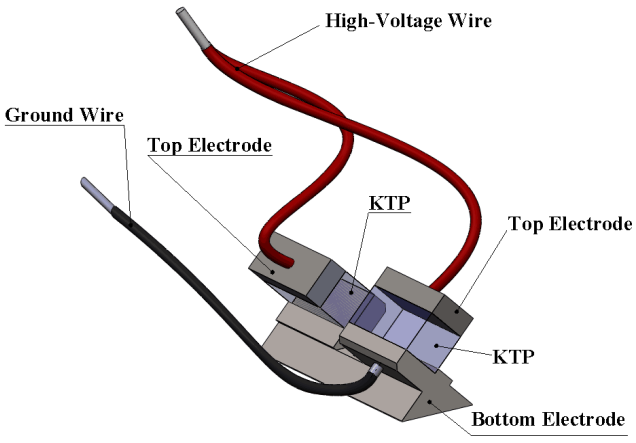
Common applications:

Q-switch | Pulse picking
Phase modulators | Amplitude modulators
Cavity dumpers |Shutters
Attenuators & Deflectors

Advantages:

- Non-hygroscopic
- Excellent optical uniformity
- Wide optical bandwidth of 500-2800nm
- Low absorption losses at 1064nm wavelength (<250ppm/cm at 1064nm)
- Low half-wave voltage for electro-optics applications
- Minimum piezoelectric ringing compatible for 1MHz
- Rise time under 1ns to precise switching in high rep rate laser
- High laser induced damage threshold (> 600MW/cm^2 at 10Hz,10 ns at 1064nm)
- High resistivity and thermally compensated design to operate on large temperature range (-50℃ to +70℃)

KTP EO Q-Switch Structure:



Operation instruction:

Use M2 screw to install the device.
The two high voltage wires connect the positive pole of the power supply. The ground wire connects the negative pole.
Input beam is polarized along the diagonal of the KTP crystal input face.

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Technical Descriptions

Specifications:

	Typical value
Clear aperture diameter (mm)	3.5
Crystal dimensions (mm)	4×4×5
Quantity of crystals	2
Quarter wave voltage @1064nm (kV DC) (1)	~1.4
Optical transmission @1064nm	>98.5%
Contrast ratio VCR @1064nm (2)	>100:1
Damage threshold for 10Hz,10ns @1064nm (MW/cm^2)	600
Resistivity @ 25℃(Ω•cm) (3)	>10^{11}
Angular adjustment tolerance (degree)	1.5

Notes:

(1) The quarter wave voltage (QWV) is nominal +/-15%.

(2) The contrast ratio is given for a circular clear aperture of 80%.

(3) The resistivity is given for <50% humidity.

(4) Working temperature:<**45℃**

3. Instruction

Warning! It is strictly forbidden using DC high-voltage on the device for a long time (more than one minute), because it will cause one of the crystals poled, then the device loses its' electro-optical effect.

Warning!★★★This EO Q switch is only used under quarter wave voltage.

Note:

(1)If the laser average power is high, it may result in dropping of the contrast ratio. It is suggested to control the temperature.

(2)It is not recommended to use the off Q-switching mode (the half wave voltage is applied to prevent from lasing and switching down to zero to generate the output of laser pulse),which will reduce the working life of the device.

(3)The excessive voltage might cause the breakdown of the crystal material and permanent damage to the device. To avoid this, please ensure the voltage applied not exceed 30% up of the nominal half-wave voltage.

4. Safety

Avoid any contact with the electrode while the device is working!

5. Warranty information

Guilin Bairay guarantees every product is tested strictly before delivery, ensures one year's shelflife from the date of purchase. Any improper use or unauthorized attempt to repair will cause cancellation of warranty.

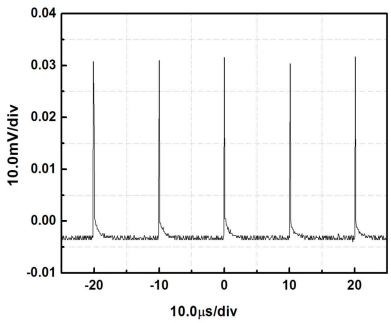
KTP POCKELS CELL

[custom design upon request]

Technical Data

Sizes of one of the pair of KTP (mm)	X-cut		Y-cut		Electrical Resistivity (Ohm·cm)
	HWV @1064nm (V)	Extinction Ratio @ 633nm (dB)	HWV @1064nm (V)	Extinction Ratio @ 633nm (dB)	
3×3×10	1200	> 20	1000	> 20	> 10^{11}
4×4×10	1600	> 20	1300	> 20	> 10^{11}
5×5×10	2000	> 20	1600	> 20	> 10^{11}
6×6×10	2300	> 20	1900	> 20	> 10^{11}
7×7×10	2700	> 20	2200	> 20	> 10^{11}
8×8×10	3100	> 20	2500	> 20	> 10^{11}
9×9×10	3500	> 20	2800	> 20	> 10^{11}
Damage Threshold: > 600 MW/cm^2 for 10 ns pulses @ 1064 nm (AR coating)					

KTP Pockels cell working at 100kHz



WISOPTIC Advantages of KTP Pockels Cell

- Wide optical bandwidth (0.5-3μm)
- Low insertion loss
- Low half-wave voltage
- Low operating voltage
- High extinction ratio
- Very high laser damage threshold
- No piezoelectric ringing effect
- Precise switching in high repetitive rate laser
- Thermally compensated design of large temperature range
- Compact design, very easy to mount and adjust
- Quality KTP crystal with high environmental resistance

CONTACT **WISOPTIC** FOR THE BEST SOLUTION FOR YOUR APPLICATION OF **KTP POCKELS CELL**.

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