

Optical Switches

The optical switch is a high-speed switch with an electro-optical crystal or a rotatable wave plate as the core element. It is an external cavity modulator which consists of a polarizing element and a polarizer. When a voltage is applied to the electro-optic crystal, the birefringence will be induced hence altering the polarization of light. The polarizer will split the light into two beams orthogonally as transmitted light and reflected light. Thus, the laser could be turned-on and turned-off quickly with response to the change of voltage.

CASTECH's optical switches can be divided into two types: mechanical optical switches and electro-optical optical switches.

The mechanical optical switch changes the light on and off by controlling the rotation angle of the half-wave plate.

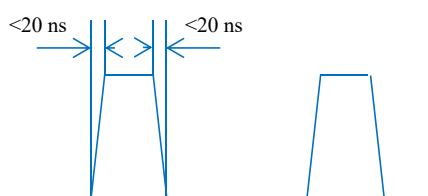
The electro-optical optical switch is a high-speed shutter based on the electro-optical effect, and the modulation speed can reach nanosecond level.

CASTECH provides drivers with nanoseconds rise/fall time to complement our optical switches. And optional accessories such as optical traps are also available.

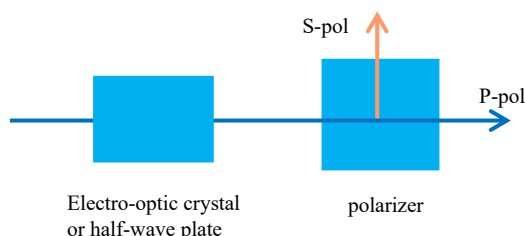


Applications

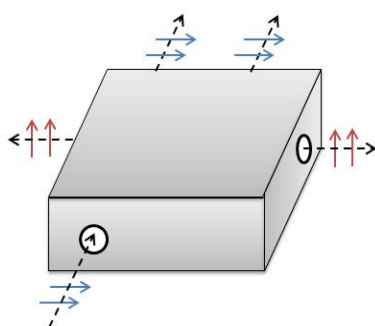
- Laser industrial processing
- Beam splitting
- Frequency division
- Laser sensing system
- Ultrafast laser system



High voltage waveform



Schematic diagram of optical switch



Multi-channel optical switch

Optical Switches

Mechanical Optical Switches Model Number: COS-Oc-p-a-w-b-d

Control mode(c)	Power(p)	Aperture(a)	Wavelength(w)	Polarizer(b)	Channel(d)
A (automatic)	100 (≤100 W)	5(5 mm) 10(10 mm) 12(12 mm)	343 nm 355 nm 800 nm	B (Brewster) P (PBS)	1
M (manual)	200 (≤200 W)	14(14 mm) 20(20 mm) 30(30 mm)	1030 nm 1064 nm 1550 nm		2
	1000 (≤1000 W)		3
					4
					...

Electro-optical optical switches Model Number: COS-Ec-p-a-w-b-d

Control mode(c)	Power(p)	Aperture(a)	Wavelength(w)	Polarizer(b)	Channel(d)
A (automatic)	50 (≤50 W)	5(5 mm) 10(10 mm) 12(12 mm)	343 nm 355 nm 800 nm	B (Brewster) P (PBS)	1
	100 (≤100 W)	14(14 mm) 20(20 mm)	1030 nm 1064 nm 1550 nm		2
	200 (≤200 W)		3
					4
					...

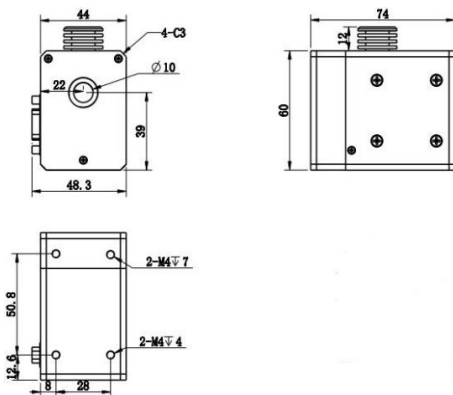
Typical Specifications

Type(t)	Power	LIDT	Wavelength	Aperture	Rise/fall time	Extinction Ratio
Mechanical	<1000 W*	10 J/cm ² 10 ns, 10 Hz	1064	10 mm	<10 ms	>1000:1
Electro-optical	<100 W	3 J/cm ² 10 ns, 10 Hz	532	10 mm	<20 ns	>1000:1

* Polarizing element used is Brewster window

Housing dimensions(mm):

Mechanical



Electro-optical

