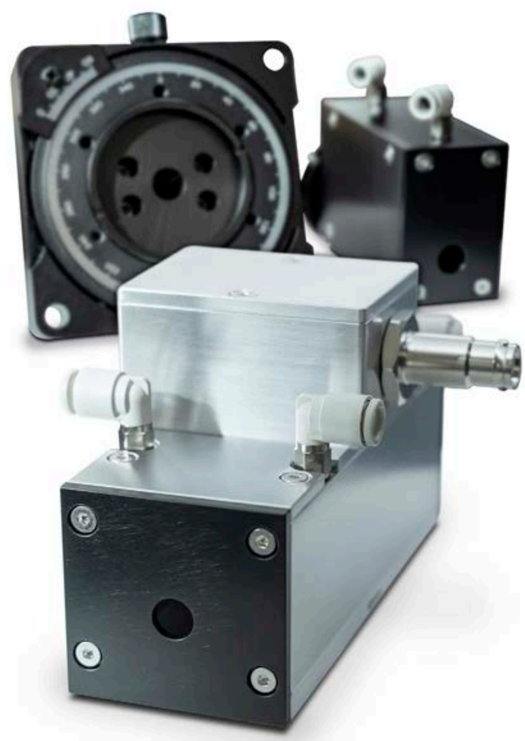
ELECTRO-OPTIC SWITCH

Fast Rise Time Electro-Optic Switch for CO_2 Lasers

This innovative series of electo-optic switches (Pockels Cells) offers the benefits of fast rise time pulsing, which translates to sharper, cleaner features and minimized heat-affected zones, especially in materials processing tasks such as PCB via hole drilling. Remarkably, this superior performance is available at the same cost as achieved using traditional, lower-performance acousto-optic modulators.

The devices enhance optical performance and streamline the beam delivery system since, unlike an AOM, an electro-optic switch doesn’t deviate the beam. Embrace the future of precise, efficient materials processing with Coherent electro-optic switch.



FEATURES

- Fast rise time for improved materials processing
- No beam deflection for simplified delivery optics
- Large aperture (9 mm)
- Handles up to 300 W
- Comparable insertion loss to AOMs
- Supplied as a complete system
- Electro-optic switch, TFPs, Driver, and Power Source

APPLICATIONS

- PCB Via Hole Drilling
- Marking
- Engraving
- Perforating

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Optical Specifications	Electro-Optical Switch
Aperture Diameter (mm)	9.0
Minimum Beam Height (mm) (from adapter base)	27.2
Surface Figure (Fringes at λ = 633 nm)	0.5
Maximum Input Power (W)	300
Minimum Beam Diameter (mm) ($1/e^2$)	3
Operable Wavelengths[1] (µm)	9.4
Performance Specifications	
Pockels Cell Transmission (%)	90
Polarizer-Pockels Cell-Polarizer Transmission (%)	85
Contrast Ratio	200:1
Acoustic 2% Time (µs)	30
Pointing Deviation (µrad) (10 minutes)	250
Optical Rise/Fall Time (ns) (20% to 80%)	50

Notes:
1. Can be coated for any wavelength in the 5-11 µm range but only operates 0-100% transmission at 1 selected wavelength.

The theoretical maximum operation characteristics of the driver can be defined by the following equation:

$$250 \geq f_{system} \cdot n_{pulses} (0.003 + 10 \cdot t_{pulse})$$[1]

Where:

f_{system} = *frequency of system in (Hertz), measured from one laser pulse to the next (typically 5 kHz or 10 kHz).*

n_{pulses} = *number of puses per burst (typically between 1 and 5).*

t_{pulse} = *width of pulses in (seconds) (typically between 200 ns and 10 µs).*

Notes:
1. This is a theoretical maximum. Real maximum performance will vary depending on system configuration. Never exceed parameters confined by the above equation, else Electro-Optic Switch and/or High-Voltage electronics may become irreparably damaged. Coherent Corporation is not responsible for device failures or damage due to operation outside the bounds of the above equation.

Typical Performance Data

Pockels Cell Pulse Response