



IRX SERIES

CdTe Pockels Cell

IRX3 / IRX4 / IRX5 / IRX7 / IRX9

Initially designed to address the Q-switched CO₂ laser market at 10.6 μm, Gooch & Housego's cadmium telluride-based IRX Q-switch may be configured to operate from ~3-12 μm. Its high electro-optic coefficient and non-hygroscopic nature makes CdTe well-suited for this purpose.

Through more than 30 years of electro-optic device design experience, G&H provides IRX Pockels cells with application-specific AR coatings or Brewster-cut ends, in apertures ranging from 3 mm-10 mm.

The IRX Pockels cells are able to address applications beyond the spectral range of traditional oxide Pockels cells. The unique, patent pending design also isolates the CdTe from the exterior environment increasing the lifetime of the cell. Water-cooled designs are available to increase the average power handling capacity (patent pending).



Features

- High electro-optic coefficient CdTe crystal
- Available with apertures ranging from 3-10 mm AR coated or Brewster-cut crystals available
- Environmentally isolated EO crystal
- Customized versions available
- Active cooling available (patent pending)
- Operation from 3 μm-12 μm up to 100 kHz
- Patent pending environmental control and high power water cooled option
- Non-hygroscopic material
- Low optical absorption

Benefits

- High contrast ratio
- Operation over wide spectral range

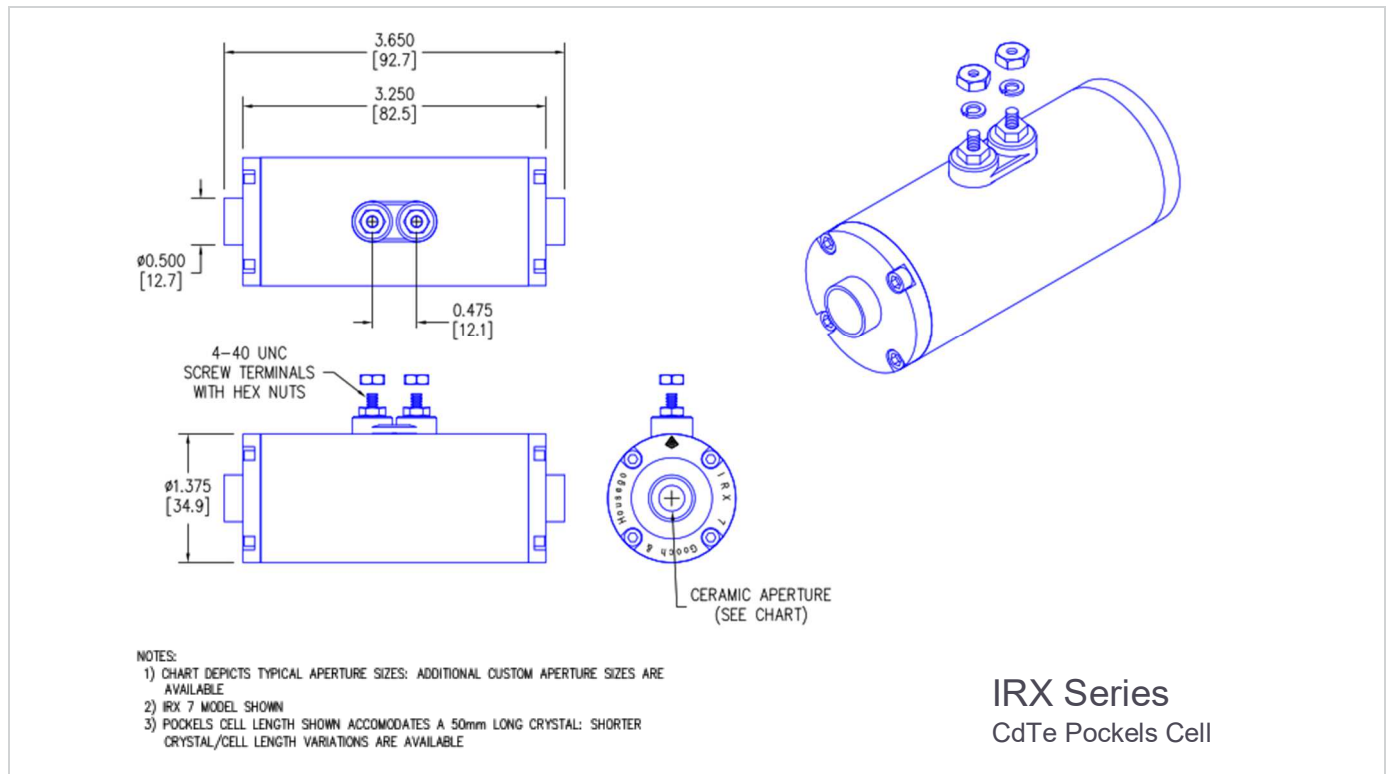
Applications

- CO₂ laser Q-switching
- IR pulse picking

Typical specifications	IRX3	IRX4	IRX5	IRX7	IRX9
Aperture diameters ¹	3 mm	4 mm	5 mm	7 mm	9 mm
Optical transmission	>98% @ 10.6 μm with 10.6 μm coatings				
Intrinsic contrast ratio (ICR) @ 10.6 μm	>500:1				
Voltage contrast ratio (VCR) @ 10.6 μm	>500:1				
Single pass wavefront distortion @ 10.6 μm	<λ/4				
Spectral range of operation	Must specify wavelength or band within 5-12 μm range				
Optical transmission	>98% @ 10.6 μm with 10.6 μm coatings				
LIDT ²	2.3 J/cm ² , 1 mm diameter, 2.94 μm, 2 Hz, 100 ns				
DC quarter-wave voltage (±6%) @ 10.6 μm	~4 kV	~5 kV	~6 kV	~7 kV	~9 kV
Capacitance (DC)	~ 6 pF				
10-90% rise time (theoretical) into 50 Ω line	~0.3 ns				
Duty cycle in 1 s (applied voltage time/total time)	≤ 10%				

1 Custom aperture sizes available

2 Recommended operation at 1/10 this fluence for increased longevity. LIDT will vary with wavelength and beam parameters.



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