

NEW

**SOL GEL
AR COATINGS
Are Standard
On All Models
In This Series**

Lasermetrics 1148 E-O Modulator/Q-switches are intended for OEM systems that incorporate 1" (25.4 mm) diameter Pockels cells. The small diameter permits drop-in replacement in existing systems requiring a 1" diameter cell. The 1148 features unique all-gold electrical contacts for highest pulse repetition rates (5 kHz) and high voltage requirements. The 1148 accommodates the most demanding high peak power laser applications. All models within the series utilize an enhanced, cement free internal crystal support and superior sealing system. The devices incorporate highest quality crystals, fused quartz windows and high damage threshold antireflection coatings.

E-O performance of the 1148 Series is based on highly deuterated (98+ %D, potassium dideuterium phosphate)-DKDP (KD*P) crystals, selected for the absence of strain and stria, lowest residual birefringence and wavefront distortion. The cylindrical ring electrode-crystal configuration produces the most uniform retardation field currently available. Crystals are mounted in durable and mechanically stable Delrin thermoplastic housings. Stainless Steel window holders with thin, low diffraction ceramic aperture plates are used in all models. Windows are bubble and strain-free fused quartz with high efficiency antireflection coatings.

Sol Gel antireflection coatings are applied to the crystal for highest peak and average power applications. Sol Gel coatings are extremely efficient, having reflectance losses of about 0.05%. Damage threshold for Sol Gel coatings is at least as high as that of the KD*P crystal material

While Sol Gel crystal coatings have largely replaced Index Matching Fluid (IMF) for the visible through Near IR, these coatings are not efficient in the UV range below 400 nm. For UV applications, when IMF is required to minimize reflection losses at the window-crystal interfaces, we recommend our Series 1040 – which includes models with apertures from 10 to 20 mm.



This new 10 mm aperture cell is the latest in our extensive line of DKDP Pockels cells and is based on our popular Q1059 series.

A variety of antireflection coatings options are available. The 1148 model can be specified with wedged or parallel window surfaces and with the crystal cut at a desired off-axis or wedge angle.

In very fast pulse gating applications, with laser pulses widths less than 100 picoseconds, the 1148 Series has a nominal damage threshold of 20 Gigawatts/cm². In Q-switching applications with pulse widths less than or equal to 10 nanoseconds the 1148 Series will tolerate more than 850 Megawatts/cm².

Lasermetrics 5055 and 5056 Q-switch drivers, and 5046ER & 5046SC Laser Pulse Gating/Extraction / Picking Systems and 8025RS HV Pulse Generator can be used with all models within the 1148 series.

1148 Series devices are guaranteed against defects in materials and workmanship for one year.

NOTES:

Drop in replacement for most 1 inch diameter Q-switches currently in use.

Available with permanently connected, high voltage insulated wire leads and flush terminals.

CONTINUED - OVER

1148 SERIES - NOMINAL SPECIFICATIONS

Aperture Diameter	10 mm diameter
Crystal Material	98.5+ % Deuterated DKDP (KD*P)
Peak Optical Power	1 Gigawatt/cm ² for pulses < 10 nsec wide
Density Capability (Uniform Beam, no Hot Spots)	10 Gigawatts/cm ² for pulses < 200 psec wide 20 Gigawatts/cm ² for pulses < 10 psec wide
Wavelength Range for Peak Power Density	530 to 1100 nanometers
Transmission, with "V" AR coatings	> 98% from 500 nm to 1064 nanometers
Quarter Wave Retardation Voltage	@ 694 nm: 2.1 kilovolts @ 1064 nm: 3.2 kilovolts
Extinction Ratio (Contrast Ratio) at 1064 nm	
75% of Full Aperture, Intrinsic:	> 2500:1
With 1/2 wave retardation voltage:	> 2000:1
Single Pass Wavefront Error	< 1/8 wave
Intrinsic Rise Time	< 350 picoseconds
Capacitance	< 5 picofarads
Weight (approximate)	50 grams

