Variable Beam Splitters (VA-CB)

Motorized VA-CB Series Broadband Ultrafast Variable Attenuator Beam Splitter. (Post and post holder sold separately)

Manual VA-CB Series Broadband Variable Attenuator Beam Splitter. (Beam Dump Shown Installed)

Features

- Compact, robust design comes in manual or motorized version
- Broad wavelength range, high power pulsed or Q-switched laser line, or low power CW laser line version
- High contrast attenuation/splitting ratios
- High optical damage thresholds over 10 mm clear aperture
- Transmitted P-polarized collinear and 90° reflected S-polarized outputs
- M4 and 8-32 mounting threads for horizontal or vertical polarization transmitted output

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Newport's variable beam splitters (VA-CB) provide continuous beam splitting over a series of broad wavelength ranges and specific laser lines. The VA-CB provides high extinction ratio attenuation of linearly polarized light for many CW and pulsed lasers. The VA-CB series is available in manual or motorized versions. The motorized version can be used in open- or closed-loop operation.

The VA-CB series uses the combination of zero-order half-waveplates and polarizing cube beam splitters to control the attenuation or beam splitting ratio. The efficiency, extinction ratio, damage threshold and pulse stretching, if applicable, will vary depending on the specific wavelength or wavelength range selected.

VA-CB options for broadband wavelength ranges of 400 – 700 nm, 700 – 1000 nm, 900 – 1300 nm and 1200 – 1600 nm. VA-CB versions designed for high power pulsed or Q-switched laser lines are available at 248 nm, 266 nm, 355 nm, 405 nm, 532 nm and 1064 nm wavelengths. VA-CB versions designed for lower power CW lasers are available at wavelengths between 248 and 1550 nm.

The optics and high-precision opto-mechanics are incorporated into a compact housing, flexibly designed for post mounting at varying optical axis heights. P-polarized light is transmitted with minimal loss collinear to the input beam path while S-polarized light is reflected at 90°. A removable beam dump is included on the reflected beam port, transforming the VA-CB into a variable attenuator for the transmitted beam. M-4 and 8-32 mounting threads are included on the bottom and one side of the housing. This allows for horizontally or verticaly polarized output.

The manual versions of the VA-CB series come with a manual rotary stage to control attenuation or beam splitting. The motorized versions of the VA-CB series come with a motorized rotary stage containing the half-waveplate.

Software is included to calibrate either the transmitted or reflected output from the VA-CB at a single wavelength. When using Newport family power meters and detectors (purchased separately), this calibration is automated. When using third-party power meters and detectors, software prompts will step the user through the creation of the calibration curve.

Once the calibration curve is created, the motorized VA-CB can be used in open-loop mode. The power meter and detector are no longer needed as the desired output power is specified as an absolute or percentage value. The half-waveplate is automatically rotated to the appropriate position to match the calibration curve.

The motorized VA-CB can also be used in closed-loop mode if desired. This option requires a beam sampler assembly (purchased separately) to pick off a portion of the transmitted or reflected beam for real-time monitoring by a Newport power meter and detector. The closed-loop control will fine adjust the position of the half-waveplate to reach the requested absolute power.

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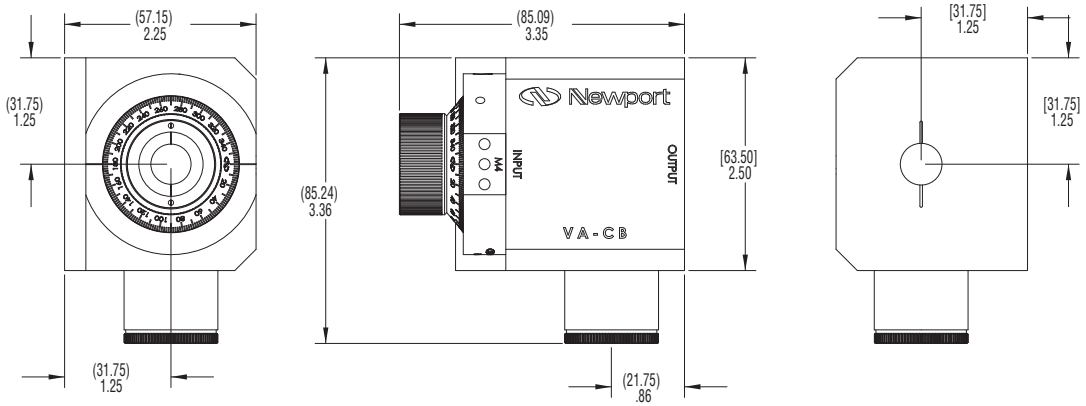
Typical Specs	Part Number Range	Wavelength (λ)	Efficiency	Attenuation/Splitting Ratio	Damage Threshold
Tunable Laser Source	VA-CB-X*	400 - 700 nm (X=1)	Tp >80%, >90% average, Rs >99.5% average	Tp/Rs >500:1 1000:1 average	500 W/cm² CW, 2 J/cm² with 8 nsec pulses @ 1064 nm
		700 - 1000 nm (X=2)			
		900 - 1300 nm (X=3)			
		1200 - 1600 nm (X=4)			
High Power Pulsed Laser (Single λ)	VA-CB-λ*	248 nm	Tp >90%, Rs >99%	Tp/Rs >200:1	2 J/cm² with 10 nsec pulses at 1064 nm
		266 nm			
		355 nm			
		405 nm			
		532 nm			
		1064 nm			
CW Laser (Single λ)		442 nm	Tp >95%, Rs >99.8%	Tp/Rs >1,000:1 (442 nm & 488 nm >500:1)	2 MW/cm² CW, 1 J/cm² with a 10 nsec puls @ 532 nm
		488 nm			
		515 nm			
		633 nm			
		780 nm			
		830 nm			
		1300 nm			

*For motorized version please add -CONEX; i.e. VA-CB-442-CONEX for CW laser at 442 nm motorized variable beam splitter



Newport Experience | Solutions

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DS-101204