



Variable Attenuators

Variable attenuators are a key element in achieving dynamic range capability of the HELIOS family of systems. Essentially, the products provide a mechanical blade that blocks the light input from the source to the sphere and thereby provides very precise control of sphere radiance. The spectrally neutral blades (black or aluminum) close the port like an iris port while minimizing color shifts in the output spectrum. Labsphere offers three exception models (VAA, VAD and VAM) that represent trade-offs between automation, resolution performance and price to suit customer projects. Attenuator designs also include flat and asymmetric blades that enhance dynamic range.

Three attenuator module choices to meet your range requirements

VAA - Advanced Variable Attenuator

The complete package – an optically encoded electromagnetic drive with fast closure and incredible step resolution. The VAA also provides our best light sealing as well as an incredible 8 orders of dynamic range. If you need the best performance you can get the VAA is unparalleled performance.



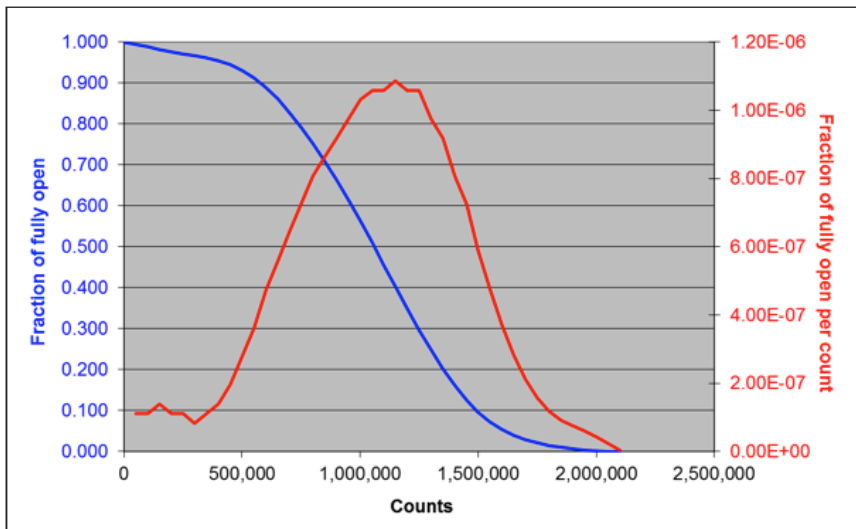
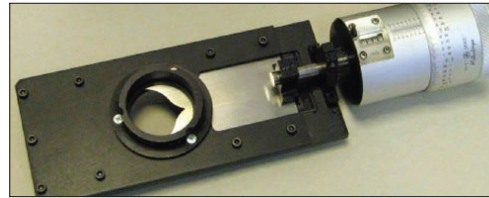
VAD – Dynamic Variable Attenuator

Our most frequently used attenuator offers a superb mix of performance and range suitable for most 12-bit cameras and sensors. The VAD is an incredibly robust design that provides very predictable and durable automated performance.



VAM – Manual Micrometer Variable Attenuator

When speed and automation are not needed for your testing requirements the VAM is a perfect balance of precision, range and control. This unit features a Mitutoyo micrometer drive system with indexed counter for easy visibility and attenuator position control.



VAA Steps vs Throughput Shape (Satellite Sphere Input)

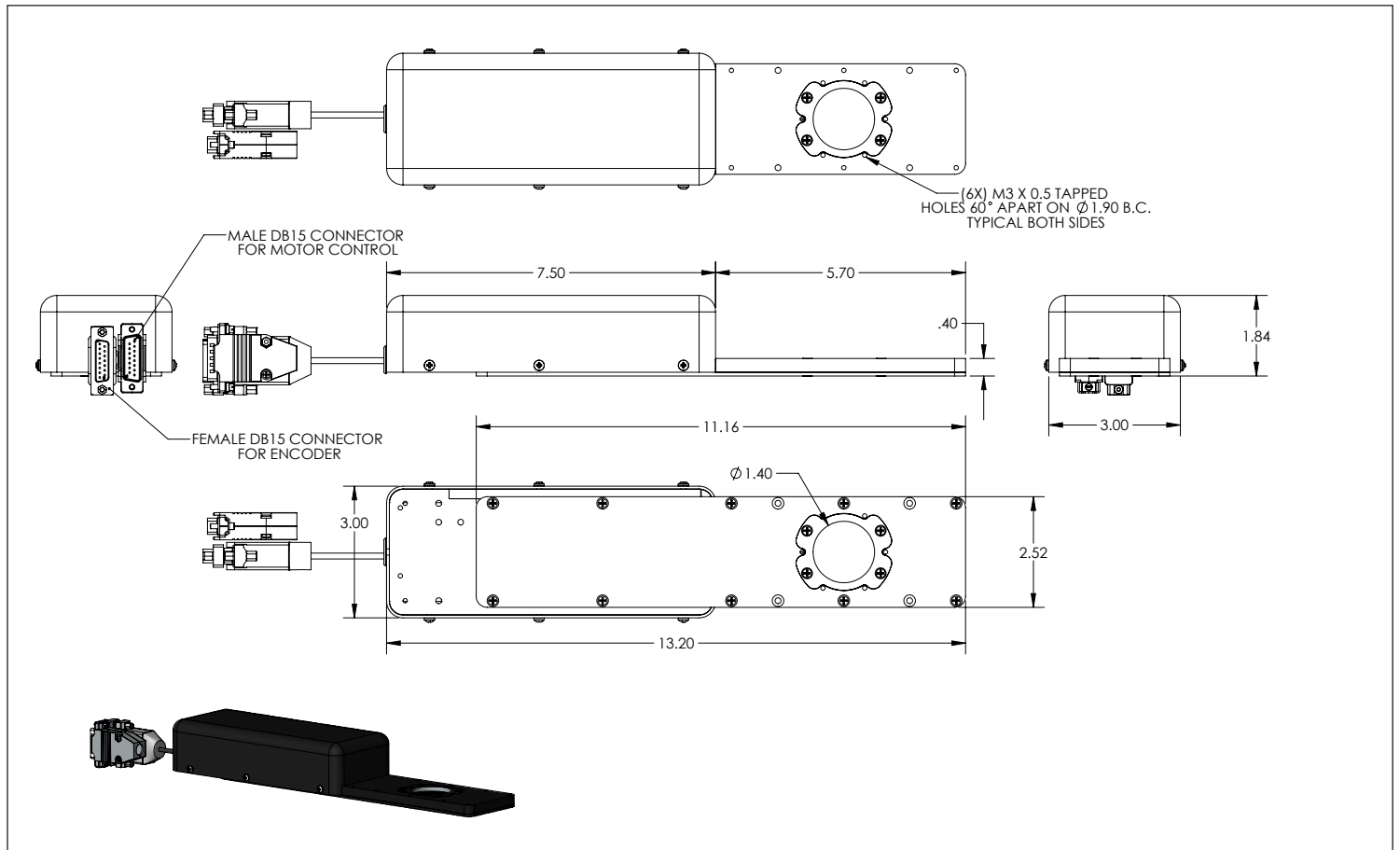
Notes on Variable Attenuators & Feedback Control

The automated variable attenuator models (VAD and VAA) can be used in conjunction with the system detectors to perform closed loop control or level seeking actions. The accuracy and specifications of these routines (and system scripts) is highly dependent on the user's desired operation. HELIOSense Software enables several scripting patterns for using closed loop solutions.

Specifications

| VA Feature | VAA-220A - Advanced | VAA-220B - Advanced | VAD-012 - Dynamic | VAM-010 - Manual |
|--------------------------------|----------------------------|----------------------------|--------------------------|--------------------------|
| Controller: | Yes | Yes | Yes | No |
| Maximum Number of Steps: | 2,200,000 | 2,200,000 | 12,000 | 10,000 |
| Approximate Dynamic Range: | 1.00E+07 | 1.00E+07 | 1.20E+04 | 5.00E+04 |
| Shutter Closure Level: | 1.00E-07 | 1.00E-07 | 1.00E-03 | 1.00E-03 |
| Blade Type: | Logarithmic Tear-Drop | Logarithmic Tear-Drop | Straight Edge | Logarithmic Tear-Drop |
| Blade Finish: | Silver-Aluminum | Optical Black | Silver-Aluminum | Silver-Aluminum |
| Full Open to Full Close Speed: | <1.5s | <1.5s | 11s | Manual |
| Optically Encoded: | Yes | Yes | No | No |
| Home for Position Setting: | Not Required | Not Required | Required | N/A |
| Micrometer Vernier: | No | No | No | Yes |
| Rated AC Input/Frequency: | 100-240VAC, 47-63Hz | 100-240VAC, 47-63Hz | 100-240VAC, 47-63Hz | 100-240VAC, 47-63Hz |
| Operating Temperature Range: | 10 to 40C | 10 to 40C | 10 to 40C | 10 to 40C |
| Storage Temperature Range: | -20C to 70C | -20C to 70C | -20C to 70C | -20C to 70C |
| Operating Temperature RH%: | 30-90% (no condensation) | 30-90% (no condensation) | 30-90% (no condensation) | 30-90% (no condensation) |
| Storage Temperature RH%: | 10-95% (no condensation) | 10-95% (no condensation) | 10-95% (no condensation) | 10-95% (no condensation) |
| Controller Required: | Yes, VAA-MC | Yes, VAA-MC | Yes, VAD-MC | No |
| Cable: | Encoder & Drive | Encoder & Drive | Drive | None |
| Compliance: | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS |
| Standard Warranty: | 1 year | 1 year | 1 year | 1 year |

VA Dimensional Drawing



VAM Dimensional Drawing

