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To: Suresh Narayanan **Date:** January 29, 2009
Company: Argonne National Laboratory
Fax:
Phone: 630-252-0287 **From:** Steven Sequeira
Email: **Ref#** qu090129sas
Subject: Galvo Shutter Quote **Pages:** 2

Dear Suresh,

Thank you for your interest in Cambridge Technology's line of optical scanning products. In response to your request, I am pleased to submit the following quotation for your consideration:

<u>Qty</u>	<u>P/N</u>	<u>Description</u>	<u>Price Ea.</u>	<u>Ext. Price</u>
1	6210H	Model 6210H Galvanometer Scanner, MiniCT connector, ± 20 mechanical degrees, ± 40 optical degrees, slotted shaft.	\$475.00	\$475.00
1	67721H	MicroMax series 677XX single axis servo driver amplifier for the model 6210H galvanometer. Power supply voltages $\pm 15V$ to $\pm 28V$, B connector. Configured for 3mm inertia.	\$345.00	\$345.00
1	6010-29-080	Interconnect Cable for the 6200, 6210, 6215, 6220 Scanners and the 677XX Servo-Driver, 2m (80 inch).	\$50.00	\$50.00
1	6M2003Z-V	3mm Shutter Mirror for the Model 6200H, 6210H, or 6215H, Fused Silica Substrate, Flatness of 1λ , V1 Broadband Visible Dielectric 450nm-675nm Coating, ± 30 deg optical.	\$45.00	\$45.00
1	611210	Single Axis Mount for the Model 6210H Galvanometer Scanner, Drawing D07239.	\$205.00	\$205.00
			Total Price:	\$1,120.00

Integration of the scanning systems requires that the customer provide DC power. DC power can be either $\pm 15VDC$ or between $\pm 18VDC$ and $\pm 28VDC$. The servo driver will be configured for $\pm 24VDC$ to $\pm 28VDC$ unless otherwise specified. This higher voltage range will give the best performance, especially for high speed and high duty cycle applications. Please specify if $\pm 15VDC$ operation is required or if the supply voltage will be less than $\pm 24VDC$. Switching power supplies can be used provided the switching frequency is in excess of 50KHz.

The CTI Servo Controller-Driver will take a -10V to +10V analog position command. This corresponds to -20 degrees to +20 degrees of shaft rotation with a linear relationship which corresponds to an optical scan of -40 degrees to +40 degrees. This corresponds to an input scale of 0.5V per degree. As an option other smaller maximum scan angles are available upon request.

Cambridge Technology standard mirrors have a Visible Dielectric Coating. The coating is a high performance, wide band dielectric with $>97\%$ reflectivity from 450nm to 675nm. The damage threshold is between 300-400 watts/cm². For the visible coating the damage threshold can be as high



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as 0.5MW/cm² for peak power. The substrates are of fused silica or crystalline silicon. The fused silica mirrors have a standard flatness of $\lambda/4$ at 632.8nm and a standard surface quality scratch and dig figure of 40/20. The crystalline silicon mirrors have a standard flatness of $\lambda/1$ at 632.8nm and a standard surface quality scratch and dig figure of 40/20.

At Cambridge Technology we take great pride in our product offerings and believe that our products are of superior performance and quality as compared to our competitors. We also take pride in our high levels of customer satisfaction and support.

Delivery: Approximately 6-8 weeks ARO. Firm delivery will be issued after receipt of purchase order.
Terms: Net 30 with approved credit, Payment in Advance, or credit card (MasterCard or Visa)
FOB: Cambridge Technology; Lexington, MA.
Validity: This quotation is valid for 60 days.

A sales acknowledgement will be faxed within one or two days of receipt of an order. If you have not received a faxed sales acknowledgement after placing an order please call Cambridge Technology. All dates listed on CTI sales acknowledgements are ship dates from CTI and not dock dates.

If you have further questions upon receipt of this communication, please feel free to contact me directly by phone, fax or e-mail. We look forward to speaking with you again soon.

Best Regards,

A handwritten signature in blue ink that reads 'Steven A. Sequeira'.

Steven Sequeira
Sales / Application Engineer