

## The 6200H Series Scanners

### Moving Magnet Series with Advanced Optical Position Detector



**The 6200H Series of closed loop galvanometer based optical scanners** combines our new moving magnet actuator technology with our innovative patented advanced optical position detector design. This combination offers the highest torque per watt and closed loop bandwidths, resulting in the highest positioning speed, precision and reliability available in any compact closed loop galvanometer in today's market.

**The 6200H Series compact design and material selection deliver the fastest step response times and high RMS speeds.** The neodymium-iron boron rotor material allows for exceptional flux densities in the air gap. The intense magnetic field strength combined with the highest rotor and mounted mirror resonant frequencies give the 6200H Series products superior peak accelerations and the fastest step response times possible in galvo technology.

**Instrumentation level accuracy and stability.** Exceptional closed loop positioning accuracy and stability are achieved through Cambridge Technology's patented advanced optical position detector providing instrumentation level accuracy and stability at a very cost effective price.

**The fastest step response times.** Sized for the fastest step response times, high RMS speeds at wide angles and for a broad range of apertures with single and dual axis solutions from 3 to 25mm, the 6200H series provides the broadest range of choices to optimize your system price/performance for any application. It is available in several different connector and cable options to meet specific system requirements.

**Designed for a wide variety of applications.** The 6200H Series is the optimal choice in for laser marking and material processing, biomedical systems, imaging and printing, semiconductor processing, laser projection or any application where speed, size and accuracy are critical to system performance.

**Cambridge Technology, Inc. also offers a variety of integral supporting products for the 6200H Series, including servo electronics, mirrors sets with coating options and X/Y system mounts. Custom single and dual axis optical apertures can be supported, consult the factory for more details.**

## Mechanical and Electrical Specifications

	<u>6200H</u>	<u>6210H</u>	<u>6215H</u>	<u>6220H</u>	Units and Tolerances
Optical Apertures Supported, Two Axis	3, 5, 6	3, 5, 6	3, 5, 6	5, 8, 10	MM
Maximum Recommended Inertial Load	0.13	0.2	0.28	1.25	gm*cm <sup>2</sup> , +/-10%
<b>Mechanical Specifications</b>					
Rated Angular Excursions	± 20	± 20	± 20	±20	Degrees
Rotor Inertia	0.013	0.018	0.028	0.125	gm*cm <sup>2</sup> , +/-10%
Torque Constant	1.2	2.79	3.78	6.17	10 <sup>4</sup> Dyne-cm/Amp, +/-10%
Coil Temperature	110	110	110	110	°C, Maximum
Thermal Resistance, Coil to Case	3.8	2	1	1	°C/Watt, Maximum
<b>Electrical Specifications, Drive Armature</b>					
Coil Resistance	2.1	3.72	2.53	2.79	Ohms, +/-10%
Coil Inductance	52	109	94	180	μH, +/-10%
Back EMF Voltage	20.9	48.7	66	108	μV/Degree/Second, +/-10%
Current, RMS	2.3	2.4	4.1	3.9	A, Maximum
Current, Peak	6	8	20	20	A, Maximum
Small Angle Step Response	130	100	130	200	μs, with appropriate CTI Y mirror
<b>Electrical Specifications, Position Detector</b>					
Linearity	99.9	99.9	99.9	99.9	%, minimum, over 40° optical
Scale Drift	50	50	50	50	PPM/°C, Maximum
Zero Drift	15	15	15	15	Microradians/°C, Maximum
Repeatability	8	8	8	8	Microradians, Maximum
Output Signal, Common Mode	155	155	155	155	μA, with AGC Voltage of 30mA, +/-20%
Output Signal, Differential Mode	12	12	12	12	μA/Deg., with Common Mode of 155μA, ± 20%
	<u>6231HC</u>	<u>6230H</u>	<u>6240H</u>		Units and Tolerances
Optical Apertures Supported, Two Axis	8,10,12,15	8,10,12,15	12,15,20,25		MM
Maximum Recommended Inertial Load	8	10	24		gm*cm <sup>2</sup> , +/- 10%
<b>Mechanical Specifications</b>					
Rated Angular Excursions	±20	±20	±20		Degrees
Rotor Inertia	0.82	0.97	2.4		gm*cm <sup>2</sup> , +/-10%
Torque Constant	1.11	1.31	2.00		10 <sup>5</sup> Dyne-cm/Amp, +/-10%
Coil Temperature	110	110	110		°C, Maximum
Thermal Resistance, Coil to Case	1	0.80	0.62		°C/Watt, Maximum
<b>Electrical Specifications, Drive Armature</b>					
Coil Resistance	1.2	1.07	1.03		Ohms, +/-10%
Coil Inductance	176	173	350		μH, +/-10%
Back EMF Voltage	195	229	346		μV/Degree/Second, +/-10%
Current, RMS	5.8	7.1	8.2		A, Maximum
Current, Peak	25	25	25		A, Maximum
Small Angle Step Response	250	250	350		μs, with appropriate CTI Y mirror
<b>Electrical Specifications, Position Detector</b>					
Linearity	99.9	99.9	99.9		%, minimum, over 40° optical
Scale Drift	50	50	50		PPM/°C, Maximum
Zero Drift	15	15	15		Microradians/°C, Maximum
Repeatability	8	8	8		Microradians, Maximum
Output Signal, Common Mode	155	155	155		μA, with AGC Voltage of 30mA, +/-20%
Output Signal, Differential Mode	12	12	12		μA/Deg., with Common Mode of 155μA, ±20%