Single-Axis Galvanometer Motors for Optical Scanning
83xxK Series

Our 83xxK Series of analog galvanometer motors feature Cambridge Technology's proprietary position detector. When positioning optics, this patented design ensures minimal drift and long-term stability, an added benefit for laser-based applications where ambient temperature may fluctuate. Compact models of the 83xxK Series enable easier integration for small or challenging spaces. Cambridge Technology offers mirrors designed for a broad range of laser wavelengths and power levels. Please contact us to learn more about Cambridge Technology, our engineering support services, and our state-of-the-art products designed to meet your application needs.

Specifications	**8300K**	**8310K**	**8315K**	**8320K**	**8330K**	**8331K**	**8340K**	**8350K**	**8360K**
Recommended Aperture Size: (mm)	3 to 7	3 to 7	3 to 7	5 to 10	8 to 15	8 to 15	12 to 25	25 to 75	30 to 100
Maximum Scan Angle: (degrees, mechanical)	40			40				40	
Rotor Inertia: ($gm \cdot cm^2$, ±10%)	0.013	0.018	0.028	0.125	0.97	0.82	2.4	15.6	47.5
Torque Constant: (dyne·cm/amp, ±10%)	$1.20x10^4$	$2.79x10^4$	$3.78x10^4$	$6.17x10^4$	$1.31x10^5$	$1.11x10^5$	$2.0x10^5$	$7.08x10^5$	$8.5x10^5$
Maximum Rotor Temperature: (°C)	110			110				110	
Thermal Resistance (Rotor to Case): (°C/watt, maximum)	3.8	2.0	1.0	1.0	0.80	1.0	0.62	0.35	0.2
Coil Resistance: (ohms, ±10%)	2.14	3.7	2.5	2.79	1.07	1.27	1.03	1.69	0.60
Coil Inductance: (µH, ±10%)	52	109	94	180	173	176	350	1030	530
Back EMF Voltage: (µV/°/sec, ±10%)	20.9	48.7	66	108	229	195	346	1220	1480
RMS Current: (A at T_{case} = 50°C, maximum)	2.3	2.4	4.1	3.9	7.1	5.8	8.2	7.1	12
Peak Current: (A, maximum)	6	8	20	20	25	25	25	20	40
Small Angle Step Response[1]: (typical)	3 mm Y mirror			5 mm Y mirror	10 mm Y mirror		15 mm Y mirror	50 mm Y mirror (Be)	
	130 µs	100 µs	130 µs	200 µs	250 µs	250 µs	350 µs	3.0 ms	2.1 ms
Weight (grams, typical)	13.3	18	25.8	42.5	267	142	356	590	1200

1: 0.1° step and settled to within 99% of the final position. Requires Cambridge Technology servo board.

Position Detector (specifications common across all models)

Linearity: (angles are in mechanical degrees)	99.9% minimum, over 20° 99.5% typical, over 40°
Scale Drift:	15 PPM/°C, maximum
Zero Drift:	5 µrad/°C, maximum
Repeatability, Short-Term:	8 µrad
Output Signal, Common Mode:	283 µA minimum, with AGC current of 60 mA
Output Signal, Differential Mode:	22.6 µA/° (±2.5%) at common mode current of 283 µA
Output Signal, Common Mode to Differential Mode Ratio:	12.5 (±2.5%)

All models are RoHS compliant

Part Number: DS00002 Rev C
Published: 2015 November.

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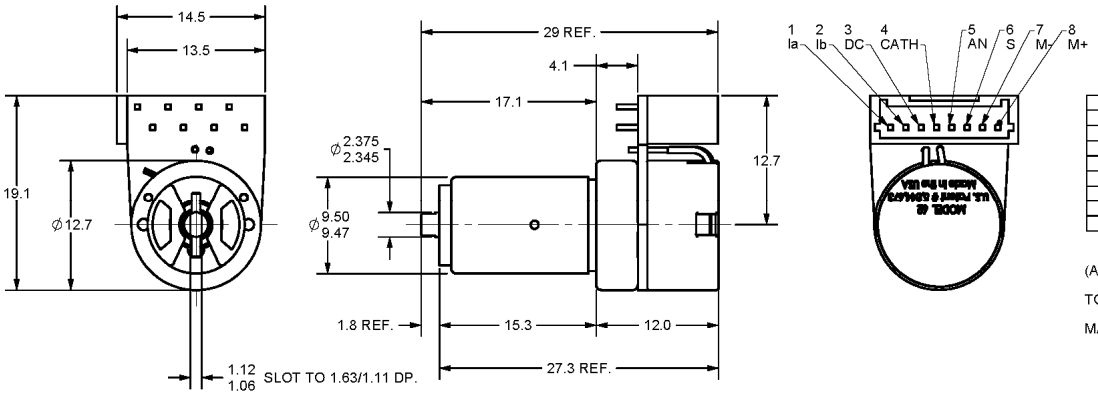
8300K Galvanometers

D05832 Rev. E



PIN #	DESCRIPTION
1	Ia
2	Ib
3	DIODE COMMON
4	AGC RETURN
5	AGC INPUT
6	SHIELD
7	- MOTOR
8	+ MOTOR

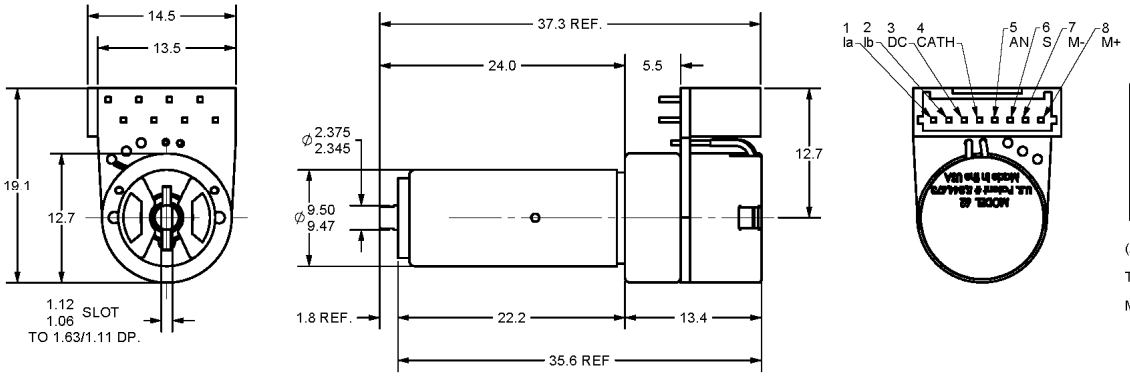
(ALL DIMENSIONS ARE IN mm)

TOL: .X = ±.3

MASS = 13.3 GRAMS

8310K Galvanometers

D05833 Rev. E



PIN #	DESCRIPTION
1	Ia
2	Ib
3	DIODE COMMON
4	AGC RETURN
5	AGC INPUT
6	SHIELD
7	- MOTOR
8	+ MOTOR

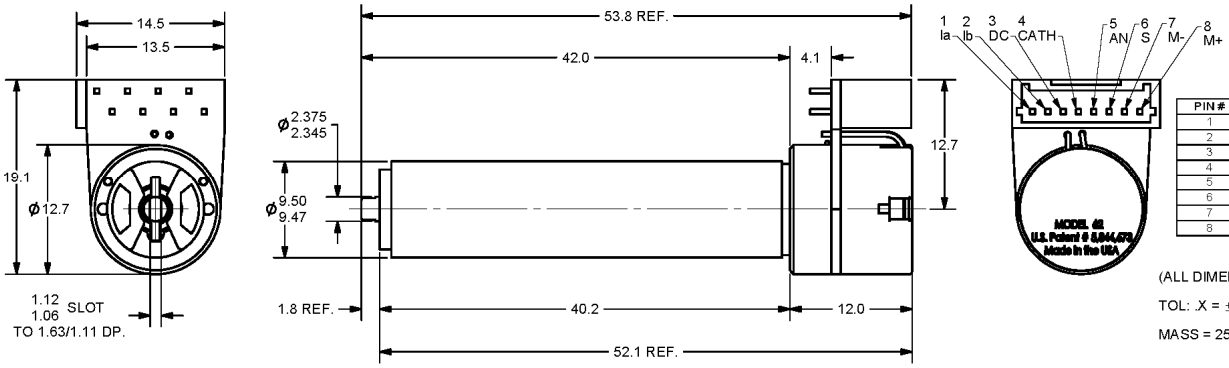
(ALL DIMENSIONS ARE IN mm)

TOL: .X = ±.3

MASS = 18 GRAMS

8315K Galvanometers

D05789 Rev. D



PIN #	DESCRIPTION
1	Ia
2	Ib
3	DIODE COMMON
4	AGC RETURN
5	AGC INPUT
6	SHIELD
7	- MOTOR
8	+ MOTOR

(ALL DIMENSIONS ARE IN mm)

TOL: .X = ±.3

MASS = 25.8 GRAMS

Additional connector options are available for all models.
Please contact Cambridge Technology for more information.

Subject to change without notice.

Part Number: DS00002 Rev C
Published: 2015 November.

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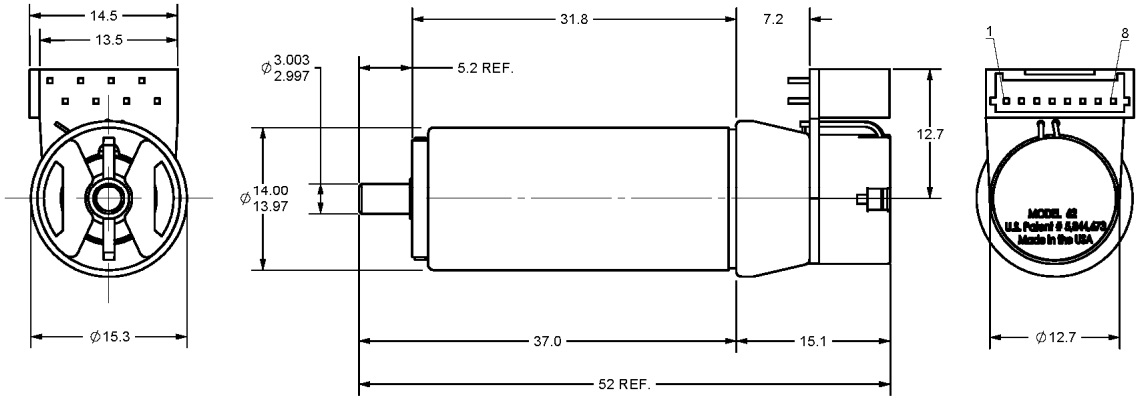
8320K Galvanometers

D05834 Rev E



PIN #	DESCRIPTION
1	PD OUTPUT A
2	PD OUTPUT B
3	DIODE COMMON
4	AGC RETURN
5	AGC
6	SHIELD
7	MOTOR -
8	MOTOR +

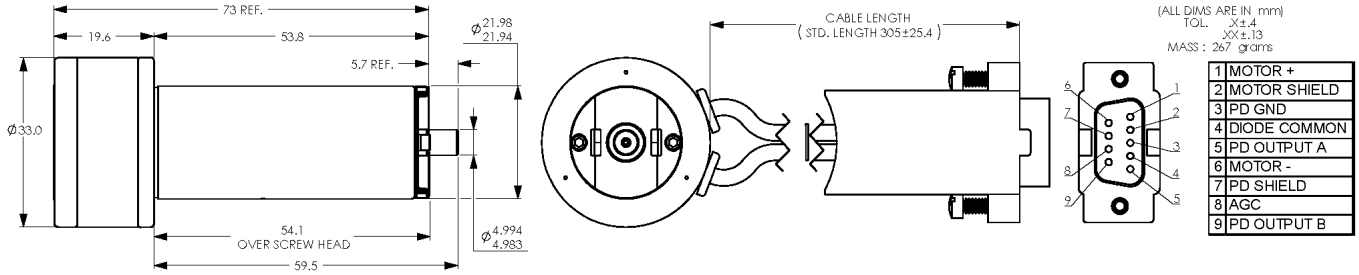
(ALL DIMENSIONS ARE IN mm)

TOL. .X = ±.4

MASS : 42.5 GRAMS

8330K Galvanometers

D05999 Rev D



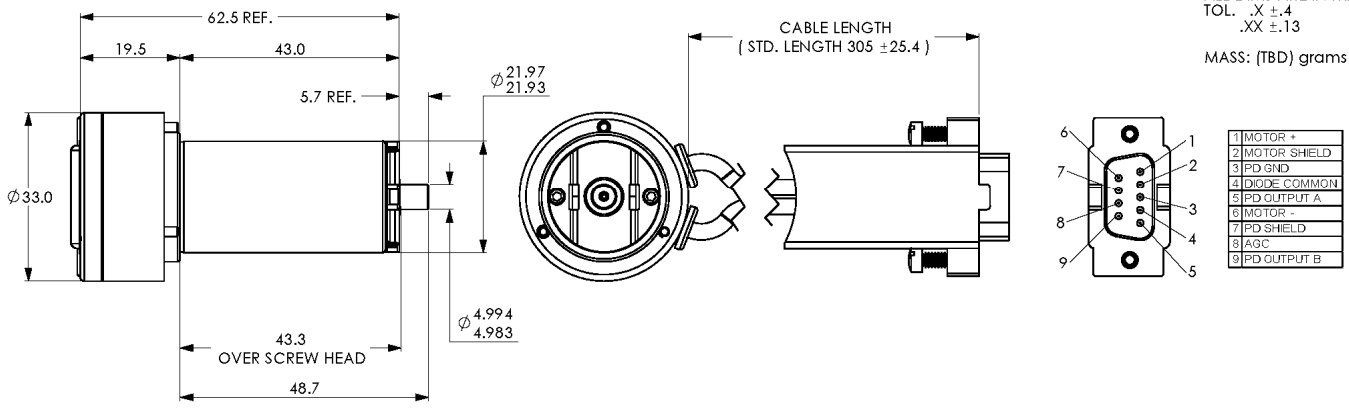
1	MOTOR +
2	MOTOR SHIELD
3	PD GND
4	DIODE COMMON
5	PD OUTPUT A
6	MOTOR -
7	PD SHIELD
8	AGC
9	PD OUTPUT B

8331K Galvanometers

D07818 Rev C

ALL DIMS ARE IN mm
TOL. .X ±.4
.XX ±.13

MASS: (TBD) grams



1	MOTOR +
2	MOTOR SHIELD
3	PD GND
4	DIODE COMMON
5	PD OUTPUT A
6	MOTOR -
7	PD SHIELD
8	AGC
9	PD OUTPUT B

Additional connector options are available for all models.
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Part Number: DS00002 Rev C
Published: 2015 November.

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Single-Axis Galvanometer Motors for Optical Scanning
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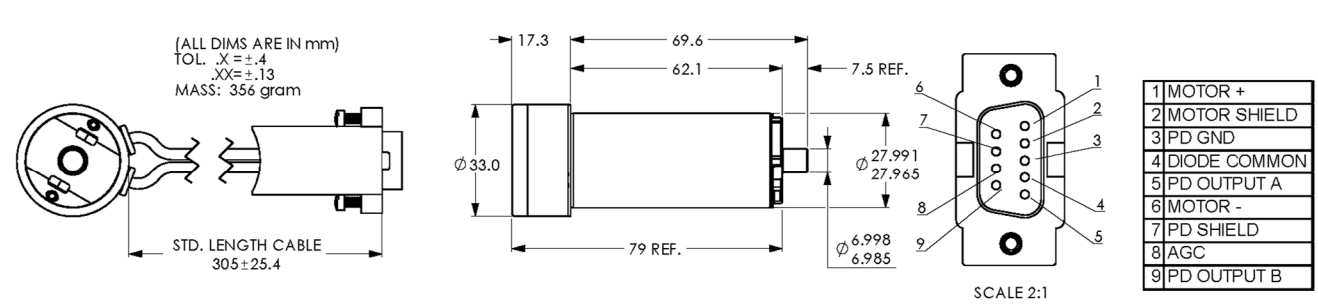
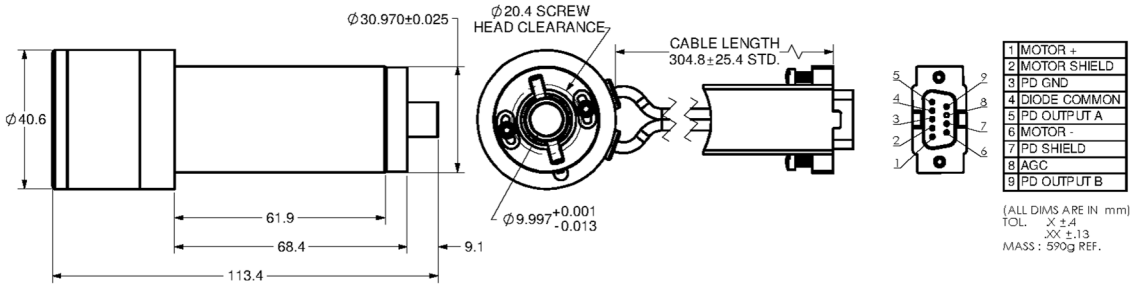
8340K Galvanometers

D06049 Rev D



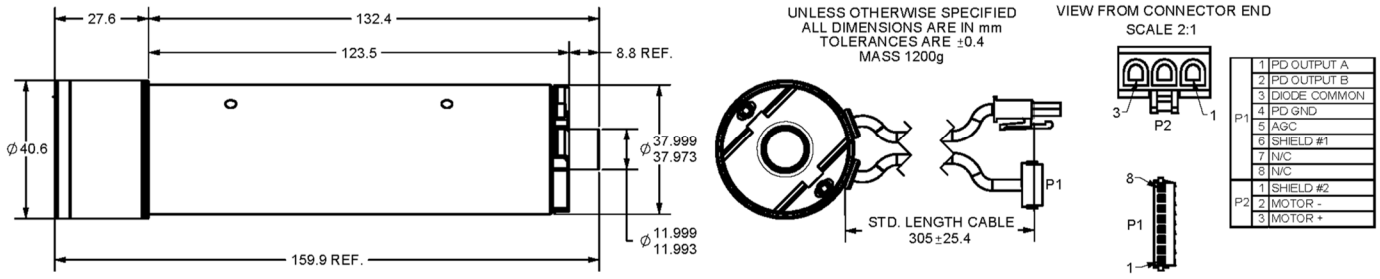
8350K Galvanometers

D09773 Rev C



8360KA[2] Galvanometers

D07786 Rev C



2. 8360KA model shown with the "A" connector type
Additional connector options are available for all models.
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Part Number: DS00002 Rev C
Published: 2015 November.

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