



## 83xxK Series

Galvanometer Scanners



### Product Highlights

Our 83xxK Series of scanners builds on the 62xxH Series' speed and reliability with even higher resolution and thermal stability for the most demanding, high-precision applications. Each model includes our best-in-class, moving magnet actuator technology and enhanced position detector only available from Cambridge Technology. With its lower drift and noise, the 83xxK Series is ideal for applications requiring precise features such as micromachining and large field applications that are dependent on stability.

### Achieve the highest level of scanning accuracy, speed, and reliability

- Industry's fastest motor speeds, with even higher resolution and stability
- Superior precision and accuracy that ensures high-quality processing output
- Robust design supports consistent reliability over long product lifetimes
- Footprint of compact models ensures easy system integration for small spaces
- Available with a wide range of mirror sizes (3 to 50 mm) and coating options

# 83xxK Series

## Galvanometer Scanners

Product 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
Wavelength Options	355 nm / 532 nm / 1030 nm - 1080 nm / 9.4 $\mu$ m - 10.6 $\mu$ m Broadband Coatings: 350 nm – 12 $\mu$ m								
Maximum Scan Angle (degrees)	40°			40°				40°	
Rotor Inertia (gm·cm <sup>2</sup> , $\pm$ 10%)	0.013	0.018	0.028	0.125	0.97	0.82	2.4	15.6	47.5
Torque Constant (dyne·cm/amp, $\pm$ 10%)	1.20x10 <sup>4</sup>	2.79x10 <sup>4</sup>	3.78x10 <sup>4</sup>	6.17x10 <sup>4</sup>	1.31x10 <sup>5</sup>	1.11x10 <sup>5</sup>	2.0x10 <sup>5</sup>	7.08x10 <sup>5</sup>	8.5x10 <sup>5</sup>
Maximum Rotor Temperature (°C)	110°			110°				110°	
Thermal Resistance (Rotor to Case) (°C/watt, maximum)	3.8	2.0	1.0	1.0	0.8	1.0	0.62	0.35	0.2
Coil Resistance (ohms, $\pm$ 10%)	2.14	3.7	2.5	2.79	1.07	1.27	1.03	1.69	0.60
Coil Inductance ( $\mu$ H, $\pm$ 10%)	52	109	94	180	173	176	350	1030	530
Back EMF Voltage ( $\mu$ V/°/sec, $\pm$ 10%)	20.9	48.7	66	108	229	195	346	1220	1480
RMS Current (A at Tcase = 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 <sup>1</sup> (typical)	3 mm Y mirror			5 mm Y mirror	10 mm Y mirror		15 mm Y mirror	50 mm Y mirror (Be)	
	130 $\mu$ s	100 $\mu$ s	130 $\mu$ s	200 $\mu$ s	250 $\mu$ s	250 $\mu$ s	350 $\mu$ s	3.0 ms	2.1 ms
Weight (grams, typical)	13.3	18	25.8	42.5	267	142	356	590	1200

### Position Detector (specifications common across all models)

Linearity	99.9% minimum, over 20° 99.5% typical, over 40°
Scale Drift	15 ppm/°C, maximum
Zero Drift	5 $\mu$ rad/°C, maximum
Repeatability, Short-Term	8 $\mu$ rad
Output Signal, Common Mode	283 $\mu$ A minimum, with AGC current of 60 mA
Output Signal, Differential Mode	22.6 $\mu$ A/° ( $\pm$ 2.5%) at common mode current of 283 $\mu$ A
Output Signal, Common Mode to Differential Mode Ratio	12.5 ( $\pm$ 2.5%)

#### Notes:

All angles are in mechanical degrees, unless otherwise noted. All specifications are subject to change without notice.

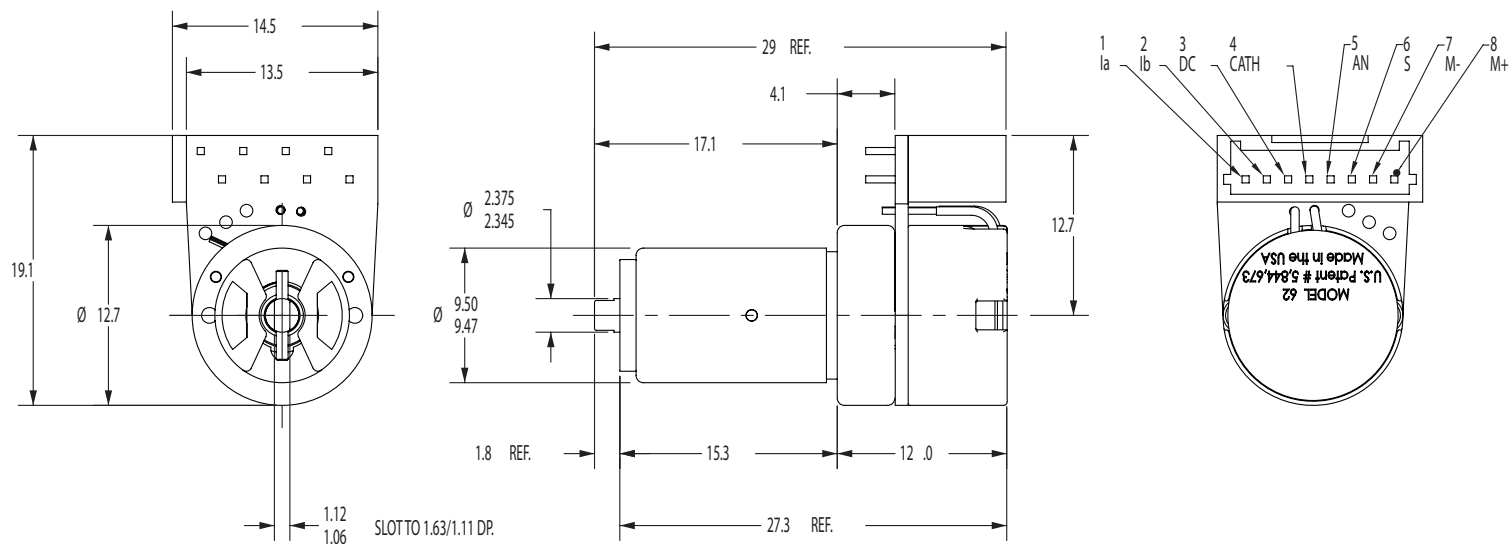
#### Reference:

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

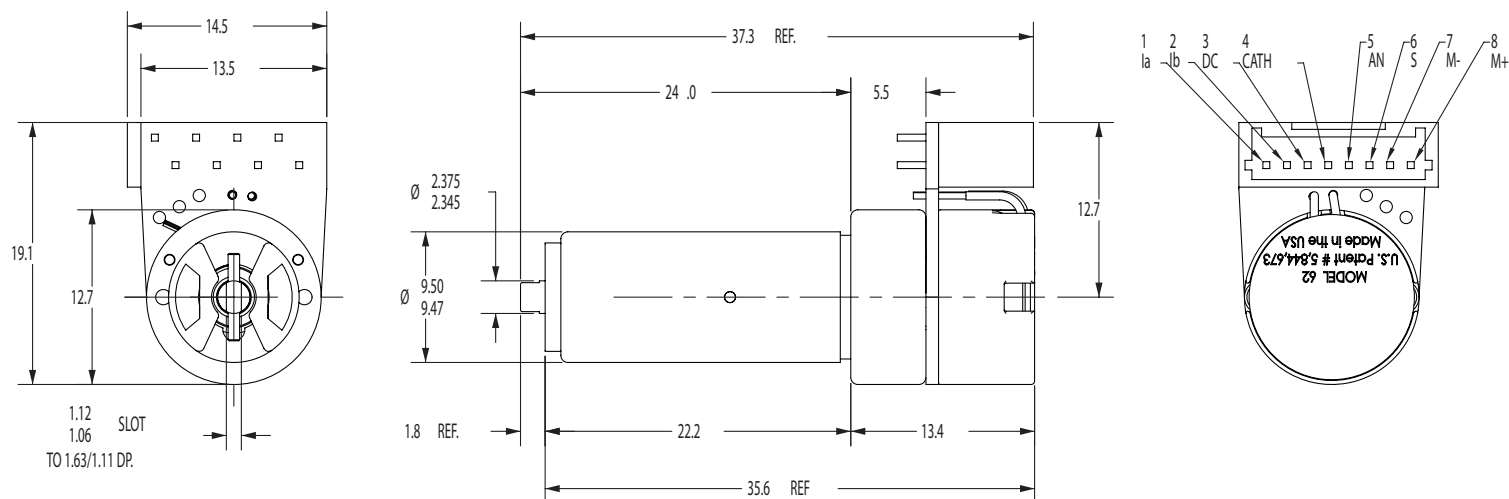
# 83xxK Series

## Galvanometer Scanners

### 8300K Galvanometers



### 8310K Galvanometers

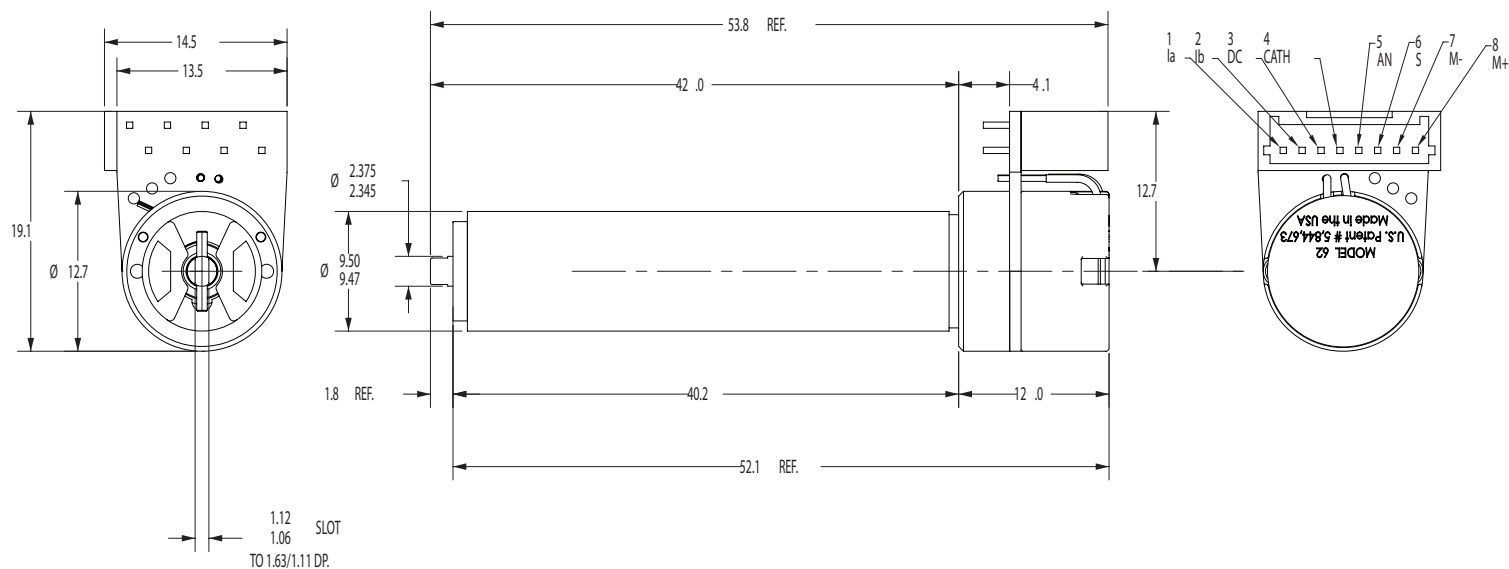


**Notes:**  
All dimensions are in mm, unless otherwise noted. All specifications are subject to change without notice.

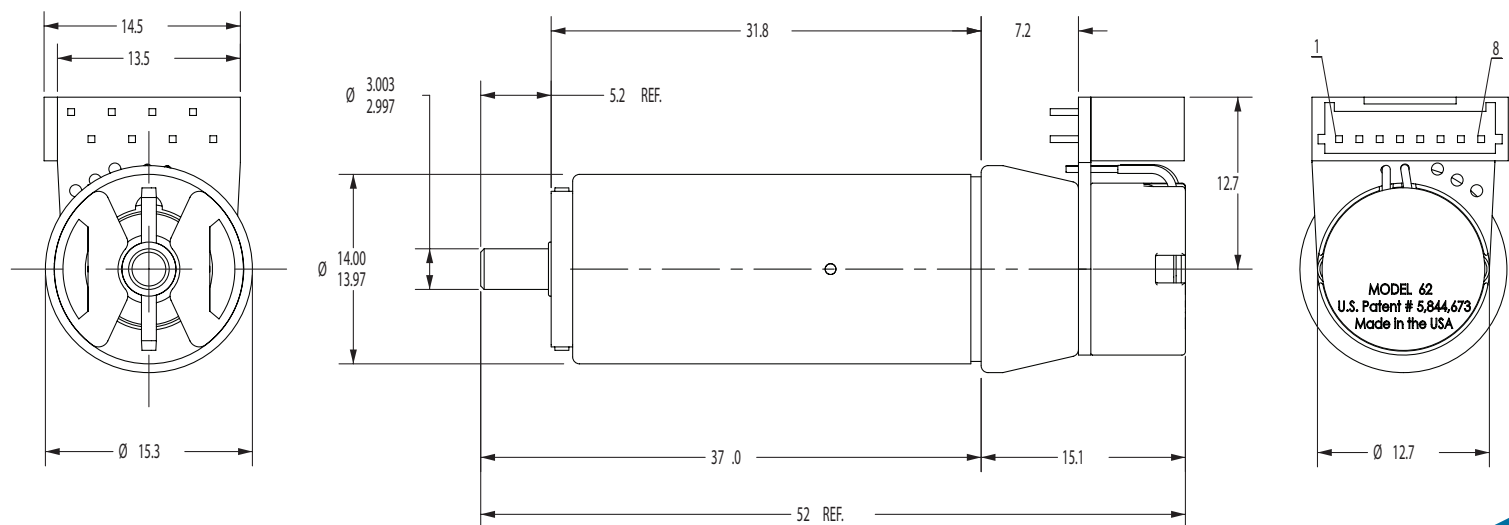
# 83xxK Series

## Galvanometer Scanners

### 8315K Galvanometers



### 8320K Galvanometers



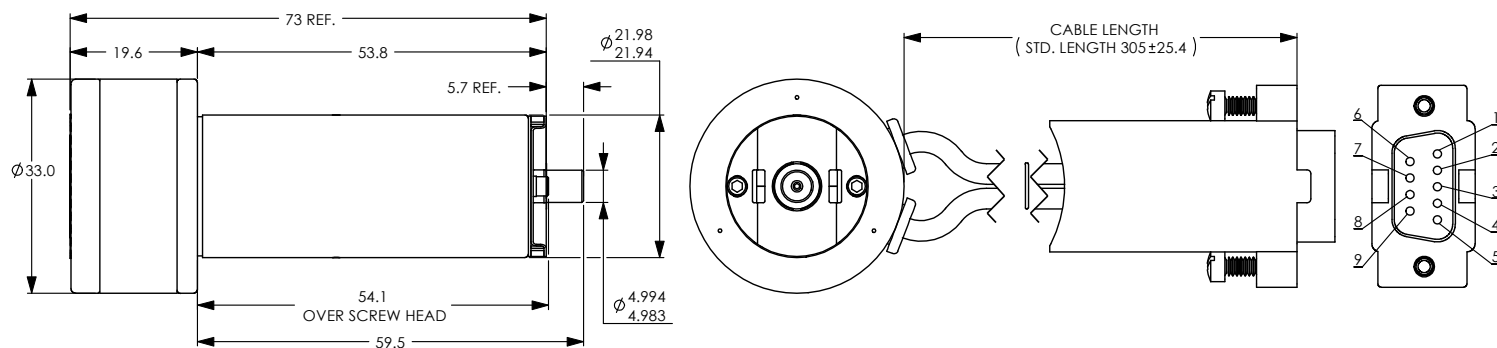
#### Notes:

All dimensions are in mm, unless otherwise noted. All specifications are subject to change without notice.

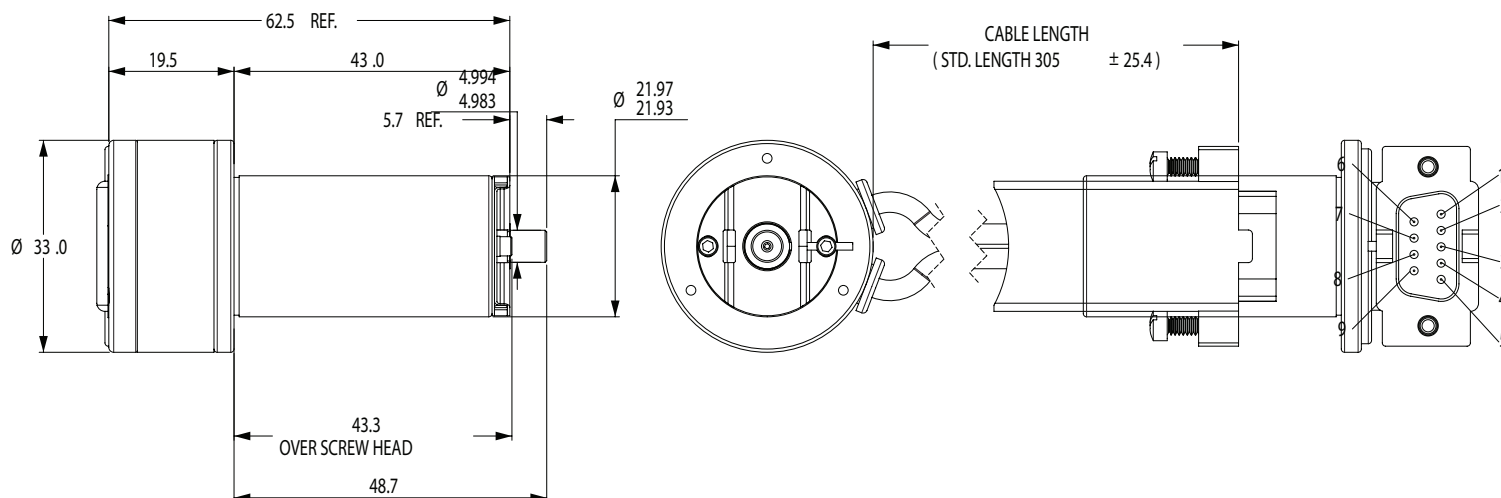
# 83xxK Series

## Galvanometer Scanners

### 8330K Galvanometers



### 8331K Galvanometers

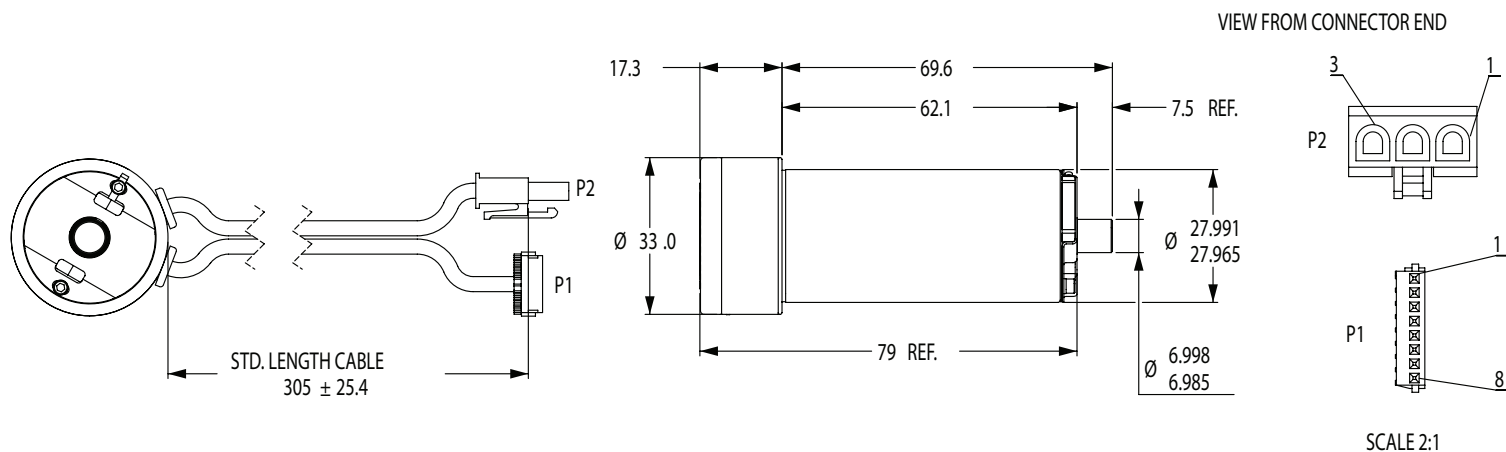


**Notes:**  
All dimensions are in mm, unless otherwise noted. All specifications are subject to change without notice.

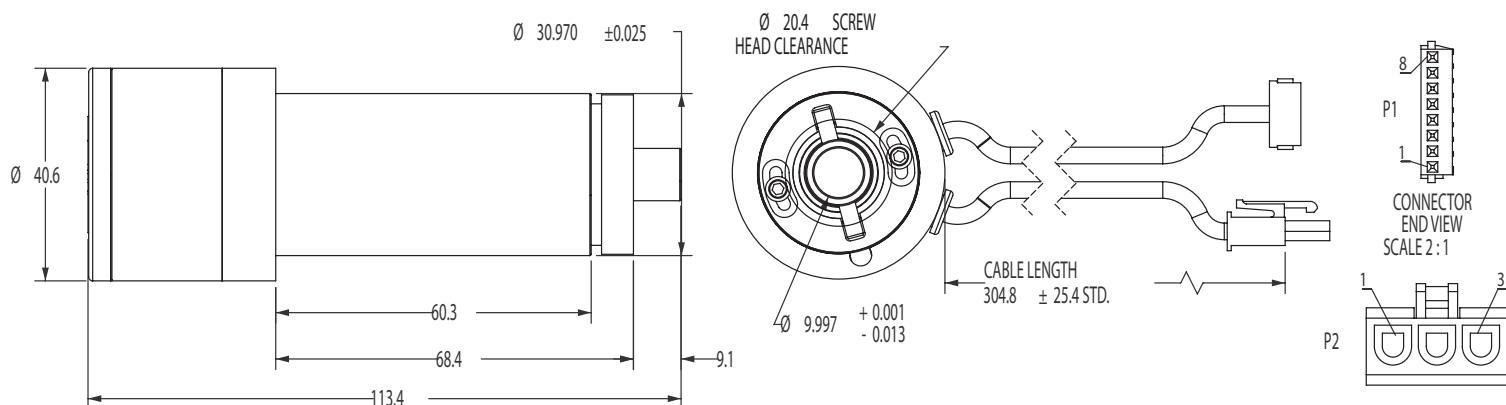
# 83xxK Series

## Galvanometer Scanners

### 8340K Galvanometers



### 8350K Galvanometers

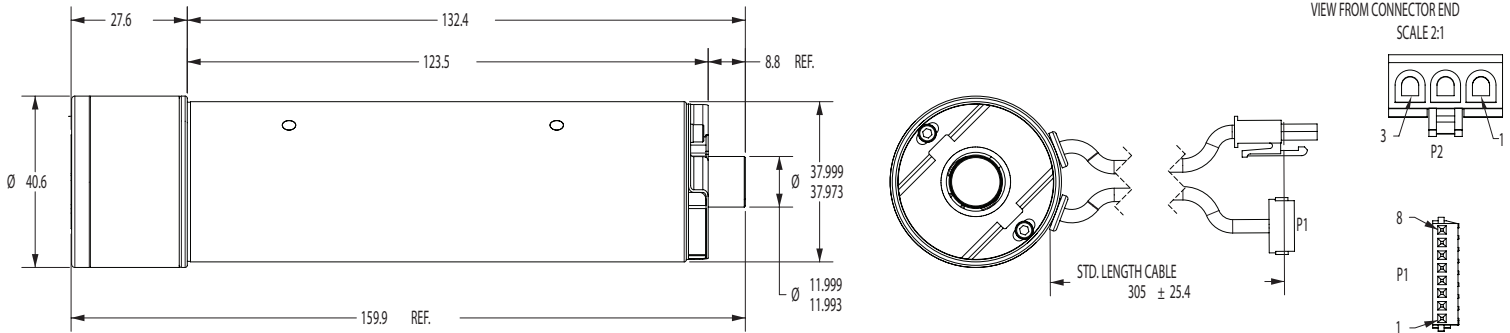


**Notes:**  
All dimensions are in mm, unless otherwise noted. All specifications are subject to change without notice.

# 83xxK Series

## Galvanometer Scanners

### 8360KA<sup>2</sup> Galvanometers



#### Notes:

All dimensions are in mm, unless otherwise noted. All specifications are subject to change without notice.

#### Reference:

2. 8360KA model shown with the "A" connector type. Additional connector options are available for all models.

## About Cambridge Technology

With close to 50 years of expertise, Cambridge Technology designs, develops, and manufactures innovative beam steering solutions including polygon- and galvanometer-based optical scanning components, 2-axis and 3-axis scan heads, scanning subsystems, high power scanning heads, and controlling hardware and software. We excel in collaborating with our key OEM partners to engineer products that meet their needs from the largest engineering solution to the smallest component. Key market applications include advanced industrial processes like additive manufacturing, laser converting, laser marking, and via-hole drilling, and medical applications such as laser treatment and optical coherence tomography. Cambridge Technology is a Novanta company.

#### CAMBRIDGE TECHNOLOGY: AMERICAS

+1 (781) 266 5800 | support-us@cambridgetechnology.com

#### CAMBRIDGE TECHNOLOGY: EMEA

+49 (0)89 31707 0 | support-eu@cambridgetechnology.com

#### CAMBRIDGE TECHNOLOGY: JAPAN & KOREA

+81 (3) 5753 2462 | support-jp@cambridgetechnology.com

#### CAMBRIDGE TECHNOLOGY: CHINA, SINGAPORE, MALAYSIA, THAILAND & INDONESIA

+86 (512) 6283-7080 | support-cn@cambridgetechnology.com