

APPLICATIONS

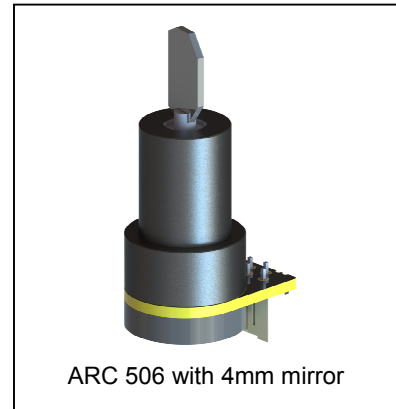
- 3D Printers
- Laser Marking
- Laser displays (light show)
- LIDAR systems

UNIQUE ARC FEATURES

- Relatively large, slotted output shaft
- Integrated back-supporting mirror mount
- Strong position feedback with low noise

BENEFITS

- Compact and lightweight
- Wide scan angle of 40 to 60 degrees
- Industry-standard galvo performance at the lowest possible cost



GENERAL DESCRIPTION

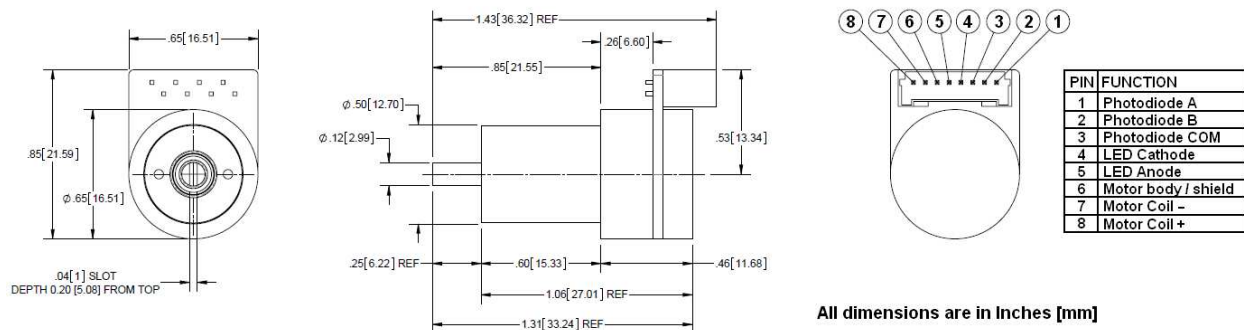
The ScannerMAX ARC-series represents an entirely new way of constructing an optical scanner. ARC is an acronym, which stands for “Actuator with Rectangular Coil”. In this new design, a small number of precision parts are assembled together along with a highly-optimized rectangular coil, to deliver industry-standard performance at a cost that is a small fraction of galvanometers commonly found in the marketplace.

Due to the fact that this series of optical scanners delivers performance similar to conventional galvanometers, ARC-series scanners can be used in any application where galvos are commonly found, including laser displays and laser marking. However, the very low price-point of this new galvo design enables consumer-grade applications, including point-of-purchase displays, 3D printers and LIDAR systems.

Although the design is completely flexible and adaptable, the ARC series has been manufactured in three separate sizes: the ARC 506, intended for 1-5 mm apertures; the ARC 5510, intended for 10-12 mm apertures; and the ARC 12532, intended for 20-50 mm apertures.

The ARC series design is licensable to certain OEMs, thus helping to further enable high volume applications.

OUTLINE DRAWING (ARC 506)



SPECIFICATIONS

Parameter	ARC 506	ARC 5510	ARC 12532	Units
Optimal Mirror Size (beam diameter)	1-5	10-12	20-50	Millimeters, clear aperture
Rotation Angle	+/- 20	+/- 20	+/-20	Degrees, Maximum
Rotor Inertia	0.014	0.117	8.3	Gram • Centimeters ²
Torque Constant	22,000	53,000	500,000	Dyne • Centimeters per Ampere
Operating Temperature Range	-10 to +85			Degrees Celsius, non-condensing
Coil Resistance	3.3	2.25	1.84	Ohms
Coil Inductance	208	230	1000	µh
Back EMF Voltage	38.4	92.5	873	µV per degree per second
RMS Current	1.3	TBD	4.1	Amperes maximum, at Tcase of 50°C
Peak Current	8	20	30	Amperes maximum
Small Angle Step Response	150-300	200-300	800-2500	µS (depending on inertial load)
PD Linearity over 30 degrees	99.5			% Minimum (with Mach-DSP polarity)
PD Output Signal (Common Mode)	300			µA (at 25mA LED current)
PD Output Signal (Differential Mode)	20			µA per degree (at 25mA LED current)
Mass	25	35	380	Grams

Specifications are at a temperature of 25° C. All mechanical and electrical specifications are +/-10%.

Angular specifications are in mechanical degrees. For most applications, optical angle = 2x mechanical angle.

ScannerMAX scanners can easily be fabricated with alternative configurations. Please contact us with your requirements.

MORE INFORMATION

More information about the ARC, Compact, and Saturn series of optical scanners and the VRAD series of actuators, including additional application hints and tips, can be found at www.ScannerMAX.com.

PATENT AND TRADEMARK INFORMATION

US Utility Patent Number: 10,720,824

US Utility Patent Number: 10,305,358

US Utility Patent Number: 9,991,773

US Utility Patent Number: 8,508,726

German Patent (Utility Model) Number: 20 2019 002 282.1

German Patent (Utility Model) Number: 20 2016 000 737.9

German Patent (Utility Model) Number: 20 2013 003 263.4

Chinese Patent (Utility Model) Number: ZL201920775937.4

Chinese Patent (Utility Model) Number: ZL201620112019.X

Chinese Patent No. ZL201310151544.3

Other US and International Patents Pending.

ScannerMAX, Compact 506, VRAD and ARC-series are trademarks of Pangolin Laser Systems.

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