

APPLICATIONS

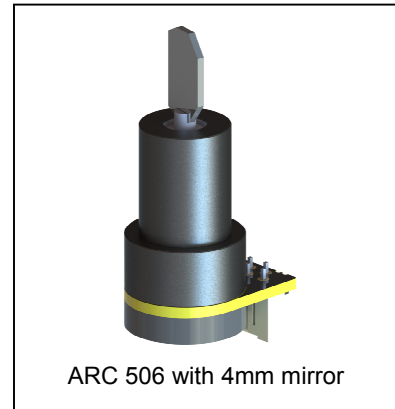
- 3D Printers
- Laser Marking
- Laser displays (light show)
- LIDAR systems

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



ARC 506 with 4mm mirror

GENERAL DESCRIPTION

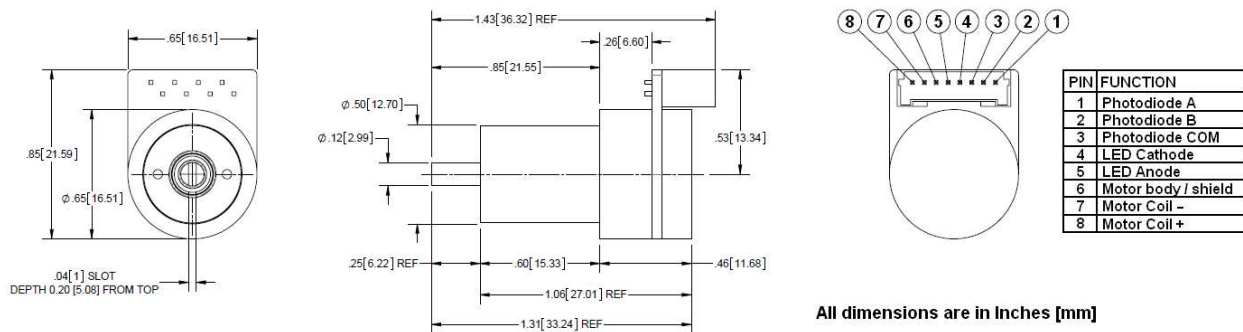
The ScannerMAX ARC-series represents an entirely new way of constructing an optical scanner. ARC is an acronym, which stands for “Actuator with Rectangular Coil”. In this new design, a small number of precision parts are assembled together along with a highly-optimized rectangular coil, to deliver industry-standard 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)





ARC-series Optical Scanners
for high volume consumer applications

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	Mechanical degrees, maximum
Rotor Inertia	0.014	0.144	8.3	Gram • Centimeters ²
Torque Constant	22,000	53,000	368,000	Dyne • Centimeters per Ampere
Coil Resistance	3.3	2.25	1.2	Ohms
Coil Inductance	208	230	690	µh
Back EMF Voltage	38.4	92.5	641	µV per degree per second
RMS Current	1.3	TBD	TBD	Amperes maximum, at Tcase of 50°C
Peak Current	8	20	30	Amperes maximum
Small Angle Step Response	150-300	200-300	1000-2500	µS (depending on inertial load)
PD Linearity over 20 degrees mech.	99.6	99.6	99.6	% Minimum
PD Linearity over 40 degrees mech.	98.6	98.6	98.6	% Typical
PD Output Signal (Common Mode)	300	300	300	µA (at 20mA LED current)
PD Output Signal (Differential Mode)	20	20	20	µA per degree (at 20mA LED current)
Mass	25	35	375	Grams

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

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
 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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