

EOPC-SC-3 & EOPC-SC-3-SH

The **SC-3** type **sub-miniature** fixed frequency resonant optical scanners is **THE NON-MEMS VERY SMALL SIZE** mechanical scanner available. It is an electromagnetically driven moving mirror device, which deflects a light beam with a continuous sinusoidal motion. The mirror assembly is attached at the center of a taut band spring. The scanning frequency range of the **SC-3** type scanner, or of the smaller size version **SC-3-SH**, is from 100Hz to 1860Hz fixed at any one value within the range. The scan angle is inversely proportional to the frequency, and is a function of the mirror size. The standard operating temperature is 0°C to +55°C. Other temperature range and vacuum operation are available upon request.

High device "Q" insures frequency stability and low electrical drive power. High flexural stiffness provides good resistance to shock and vibration, as well as low wobble, and good scan repeatability. Resonating at the natural frequency makes the device an excellent candidate for long life operation for a multitude of applications which require good imaging with minimal distortion. The scanner is especially suitable for dedicated, high volume, OEM industrial applications. The SC-3 type scanner can easily be incorporated in small size and portable instruments.

The operation of the scanner at the resonant frequency is sustained by a positive feedback amplifier type [ED driver](#) or the [AGC driver](#). The [AGC driver](#) provides a higher amplitude stability (0.01%) and a position output signal.

Applications include: **Can be used as an intra cavity Q-Switch**, confocal microscopy, cancer diagnosis, ophthalmic imaging, adaptive optics, X-ray technology, DNA sequencing, brain imaging, detecting cognitive recognition, dentistry, dermatology, developmental biology, NDE/NDT, oncology and high resolution imaging of optical coherence microscopy (OCM), laser scanners, image and pattern forming and recognition, high resolution printing, fluorescent microscopy, confocal microscopy, semiconductor imaging, web inspection, biomedical imaging, quality inspection, process verification, mask inspection, machine vision and outer space and environmental to name a few.

ONE FIXED FREQUENCY from the range of 100Hz to 1000Hz

The following should serve as guide lines only:

SCANNER MODEL	SCAN ANGLE (P-P DEG OPT)	MIRROR SIZE (mm)	FREQ. (Hz) +/- 10%
SC-3-2 or SC-3-SH-2	50°	6 dia	250
SC-3-2 or SC-3-SH-2	50°	7x7	180
SC-3-2 or SC-3-SH-2	50°	12x7	110
SC-3-3 or SC-3-SH-3	40°	6 dia	400
SC-3-3 or SC-3-SH-3	40°	7x7	285
SC-3-3 or SC-3-SH-3	40°	12x7	180
SC-3-4 or SC-3-SH-4	30°	6 dia	600
SC-3-4 or SC-3-SH-4	30°	7x7	430
SC-3-4 or SC-3-SH-4	30°	12x7	265
SC-3-5 or SC-3-SH-5	20°	6 dia	830
SC-3-5 or SC-3-SH-5	20°	7x7	600
SC-3-5 or SC-3-SH-5	20°	12x7	385

SPECIFICATIONS:

SCANNER:

SC-3 size (in inches): 0.9 x 0.5 x 0.4

SC-3-SH size (in inches): 0.55 x 0.5 x 0.4

Scan frequency range: 100 Hz to 1000 Hz

Frequency accuracy: +/-10% at 25°C, closer accuracy available upon request

Scan angle: to 50° peak to peak optical as a function of frequency and mirror size.

MIRROR:

Sizes: 6mm diameter, 7x7mm, 12x7mm

Thickness: 1.0mm, standard; other thickness values available

Flatness: 1/4 wavelength (for 6mm and 7x7mm mirrors), 1/2 wavelength for 12x7mm mirror

Surface quality: scratch and dig: 60-40.

ELECTRICAL:

Drive coil resistance: 950 ohms

Sense coil resistance: 950 ohms

Cable length of the SC-3-SH: 8 inches

Connector: female 4 pin plug on 0.1 inch centers, Molex P/N 22-01-3047 or equiv.