

EOPC-SC-5

The SC-5 type **sub-miniature** fixed frequency resonant optical scanners are electromagnetically driven moving mirror device, which deflects a light beam with a sinusoidal motion. The mirror assembly is attached at the center of a torsion spring. The scanning frequency range of the SC-5 type scanner is from 100 Hz to 1500 Hz, 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 +65°C. Other temperature range and vacuum operation are available upon request.

High device "Q" insures frequency stability, low reaction forces 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-5 type scanner can easily be incorporated in small size and portable instruments.

Operation at resonant frequency is sustained by a feedback amplifier type [ED driver](#) or the [AGC driver](#), using the scanner as a frequency source. The [AGC driver](#) also provides a higher amplitude stability (0.01%) and a position output signal. The [PLD-1S driver](#) phase locks the scanner to an external clock signal. The [PLD-2S driver](#) locks two scanners of the same frequency in a Lissajous pattern to create a circle or an ellipse or to lock two resonant scanners of the same frequency in phase or out of phase. The [PLD-2SXY driver](#) locks two resonant scanners to generate a raster scanning system. The driver locks a resonant scanner (high frequency) with a galvanometer (low frequency) to generate an X,Y raster scanning system.

Applications include: image and pattern forming and recognition, data acquisition, confocal microscopy, ophthalmoscopy, biomedical imaging, mask imaging, quality inspection and outer space and environmental research to name a few.

Special vane configurations, modulating waveforms and shapes are available as a special order (consult EOPC). Drive electronics with different package, regulation and power supply options are available. Special pricing is also available for OEM applications.

SC-5 RESONANT OPTICAL SCANNER:

ONE FIXED FREQUENCY from the range of 25Hz to 1000Hz

The following should serve as guidelines only:

FREQ. (Hz)	SCAN ANGLE (P-P DEG OPT)	MIRROR SIZE (mm)
25-99	60°	15×15
100-149	50°	10×10
150-249	40°	8×8
250-399	40°	7×7
400-599	35°	7×7
600-799	30°	7×7
800-1000	25°	7×7

SC-5-HF HIGH FREQUENCY RESONANT OPTICAL SCANNER:

ONE FIXED FREQUENCY from the range of 1200Hz to 2200Hz

The following should serve as guidelines only:

FREQ. (Hz)	SCAN ANGLE (P-P DEG OPT)	MIRROR SIZE (mm)
1200	40°	6mm dia or 6x6 mm
1500	35°	6mm dia or 6x6 mm
1800	30°	6mm dia or 6x6 mm
2200	25°	6mm dia or 6x6 mm

Laser Support Services

SPECIFICATIONS:

SCANNER:

SC-5 size (in inches): 01.00 x 0.63 x 0.46

Scan frequency range: 100 Hz to 1500 Hz

Frequency accuracy: +/-2% at 25°C, closer accuracy available upon request

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

Scan frequency range: 100 Hz to 1500 Hz

MIRROR:

Size: up to 10x10mm, as a function of frequency; larger size available

Thickness: 1.0mm, standard; other thickness values available

Flatness: 1/4, 1/2 and 1 wavelength as a function of size

Surface quality: scratch and dig: 60-40

ELECTRICAL:

Drive coil resistance: 150 or 400 ohms as a function of frequency

Sense coil resistance: 950 ohms

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