

RESONANT OPTICAL SCANNER SC-2 LOW COST SUB-MINIATURE SCANNER

FEATURES AND ADVANTAGES:

- *ONE FIXED FREQUENCY from the range of 100 Hz to 1000 Hz
- *Mirror sizes: 6mm dia., 7x6mm or 10x6mm
- *Scan angle to 50° peak to peak optical
- *Small size/lightweight
- *Vertical or horizontal mounting
- *Low power drive electronics
- *Rugged, no wearing parts
- *Maintenance free
- *High reliability
- *Withstands shock and vibration
- *High frequency stability (to 0.05%)
- *High/low temperature operation (cryo to 100°C)¹
- *Vacuum operation (to 10⁻¹⁰ Torr)¹
- *Jitter free operation
- *No radiated electromagnetic interference (EMI)
- *Position output signal available
- *Enhanced aluminum mirror coating is standard;
IR, VIS & UV coating optional¹
- *Glass mirrors are standard, other optical attachments optional¹

¹ Available as a special order



DESCRIPTION:

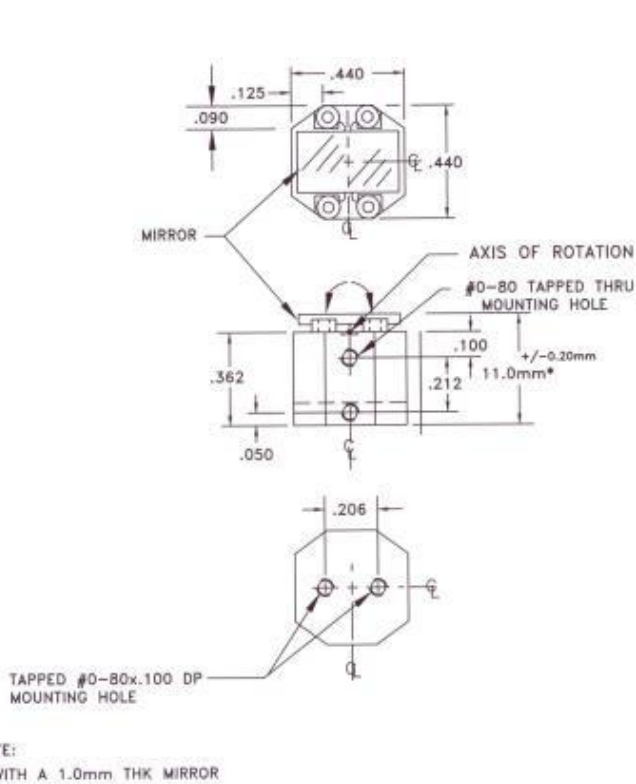
The fixed frequency resonant optical scanner is a **sub-miniature** electromagnetically driven moving mirror device, which deflects a light beam with a continuous sinusoidal motion. The mirror assembly is attached at the center of a taut band spring. The scanning frequency range of the SC-2 type scanner is from 100 Hz to 1000 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 operation at the resonant frequency is sustained by a positive feedback amplifier, the **AGC** driver or the **ED** driver. The driver controls the mirror scan angle and provides a reference signal or a position output. 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, 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 that require good imaging with minimal distortion. The scanner is especially suitable for dedicated, high volume, OEM industrial applications. The SC-2 type scanner can easily be incorporated in small size systems and portable instruments.

Applications include: **Can be used as an intra cavity Q-Switch**, confocal microscopy, cancer diagnosis, ophthalmic imaging, adaptive optics, optical coherence tomography (OCT), 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, printers, biomedical imaging, quality inspection and outer space and environmental research to name a few.

SPECIFICATIONS:

- MIRROR:** Sizes: 6mm diameter, 7x6mm or 10x6mm
 Thickness: 1.0mm, standard; other thickness values available
 Flatness: 1/4 wavelength for 6mm and 7x6mm mirror, 1/2 wavelength for 10x6mm mirror
 Surface quality: scratch and dig: 60-40
- SCANNER:** SC-2 size (in inches): 0.44 x 0.44 x 0.43
- ELECTRICAL:** Drive coil resistance: 500 ohms
 Sense coil resistance: 500 ohms
 Cable length: 8 inches
 Connector: female 4 pin plug on 0.1-inch centers, Molex P/N 22-01-3047 or equiv.
 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



TYPICAL SCAN FREQUENCY AS A FUNCTION OF ANGLE AND MIRROR SIZE:

SCANNER MODEL	MAX. SCAN ANGLE	MIRROR SIZE	FREQ.
	P-P DEG. OPT.	mm	Hz +/- 10%
SC-2-2	50°	10x6	125
		7x6	200
		6 dia	230
SC-2-3	40°	10x6	200
		7x6	300
SC-2-4	30°	10x6	275
		7x6	450
SC-2-5	20°	10x6	550
		7x6	650
		6 dia	800

THE ABOVE SHOULD SERVE AS GUIDELINES ONLY

ORDERING INFORMATION:

TYPE [SC-3]; MIRROR SIZE [mm]; ANGLE [P-P Deg. Optical]; FREQUENCY [Hz]

Example: PART NO. SC2-2-7x6-50-200. This part number specifies the model SC-2-2 scanner, a 7x6mm mirror, a 50° peak to peak optical scan and a 200 Hz operating frequency.

Other configurations and elements other than mirrors are available as special orders. Consult factory. Drive electronics with different packaging, regulation, reference signal and power supply options are available upon request. **Special pricing for OEM applications.**