

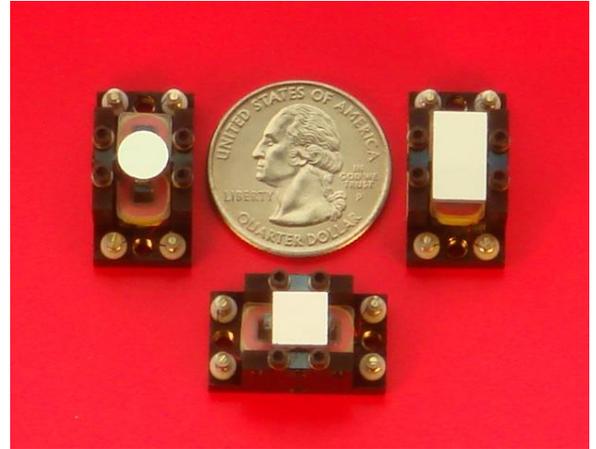


RESONANT OPTICAL SCANNER SC-3 LOW COST SUB-MINIATURE SCANNER

FEATURES AND ADVANTAGES:

- *ONE FIXED FREQUENCY from the range of 100 Hz to 1860 Hz
- *Mirror sizes: 5mm dia., 7mm dia., 8x7mm or 12x7mm
- *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 optional ¹
- *Glass mirrors are standard, other optical attachments optional ¹

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-3 type scanner, the smaller size version SC-3-SH or of the high frequency version SC-3-HF, is from 100 Hz to 1860 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.

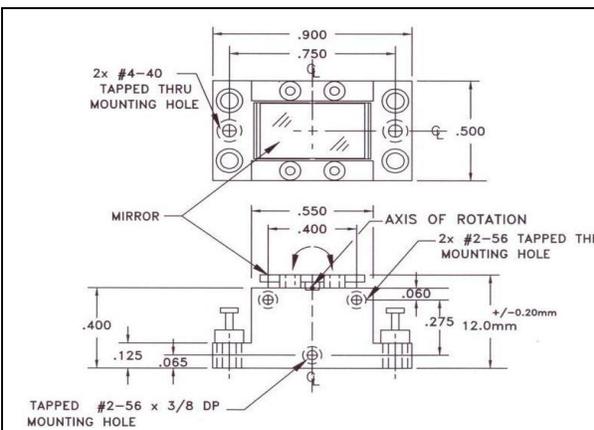
High device "Q" insures frequency stability, low reaction forces and low electrical drive power. High flexural stiffness provides good resistance to shock and vibration, as well as low wobble, and good scan repeatability. Resonating at the natural frequency makes the device an excellent candidate for 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-3 type scanner can easily be incorporated in small size systems and portable instruments.

Applications include: The scanner 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.

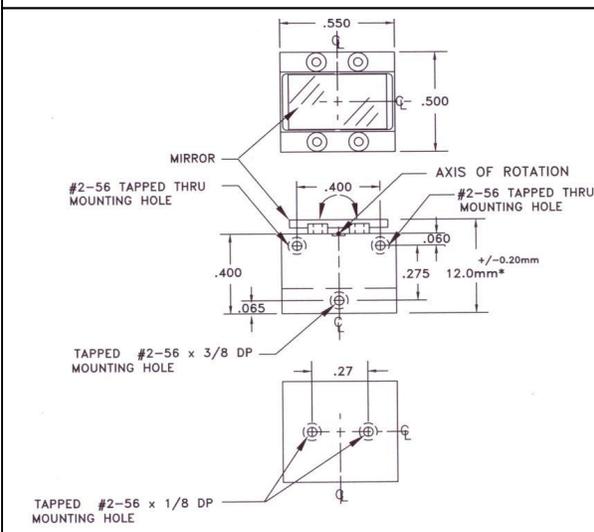
SPECIFICATIONS:

- MIRROR:** Sizes: 5mm diameter, 7mm diameter, 8x7mm or 12x7mm
 Thickness: 1.0mm, standard; other thickness values available
 Flatness: 1/4 wavelength for 5mm
 Surface quality: scratch and dig: 60-40
- 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
 SC-3-HF size (in inches): 0.55 x 0.5 x 0.4
- 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.
 Scan frequency range: 100 Hz to 1860 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

SC-3:



SC-3-SH:



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

SCANNER MODEL	MAX. SCAN ANGLE	MIRROR SIZE	FREQUENCY
	P-P DEG. OPT.	mm	Hz (+/- 10%)
SC3-2	50°	12x7	110
SC3-SH-2		8x7	230
SC3-A-2		7 dia	330
SC3-3	40°	12x7	180
SC3-SH-3		8x7	375
SC3-A-3		7 dia	520
SC3-4	30°	12x7	260
SC3-SH-4		8x7	540
SC3-A-4		7 dia	710
SC3-5	20°	12x7	380
SC3-SH-5		8x7	750
SC3-A-5		7 dia	1020
SC3-HF-5	20°	7 dia	1320
		5 dia	1580
SC3-6	15°	12x7	520
SC3-SH-6		8x7	960
SC3-A-6		7 dia	1280
SC3-HF-6	15°	7 dia	1480
		5 dia	1860

THE ABOVE SHOULD SERVE AS GUIDELINES ONLY

*WITH A 1mm THICK MIRROR DIMENSIONS ARE IN INCHES; METRIC MOUNTING OPTIONAL

ORDERING INFORMATION:

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

Example: PART NO. SC3-SH-2-8x7-50-230. This part number specifies the model SC-3-SH-2 scanner, 8x7mm mirror, a 50° peak to peak optical scan and a 230 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.**