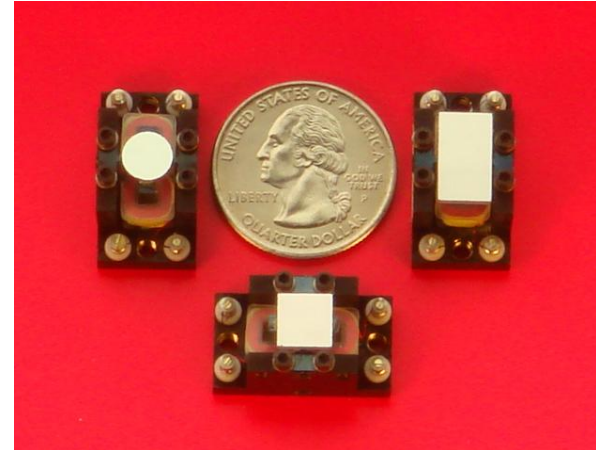


## **RESONANT OPTICAL SCANNER SC-3 LOW COST SUB-MINIATURE SCANNER**

### **FEATURES AND ADVANTAGES:**

- \*ONE FIXED FREQUENCY from the range of 100 Hz to 1000 Hz
- \*Mirror sizes: 6mm dia., 7x7mm 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)<sup>1</sup>
- \*Vacuum operation (to 10<sup>-10</sup> Torr)<sup>1</sup>
- \*Jitter free operation
- \*No radiated electromagnetic interference (EMI)
- \*Position output signal available
- \*Enhanced aluminum mirror coating is standard;  
IR, VIS & UV coating optional<sup>1</sup>
- \*Glass mirrors are standard, other optical attachments optional<sup>1</sup>

<sup>1</sup> 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, or of the smaller size version SC-3-SH, 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.

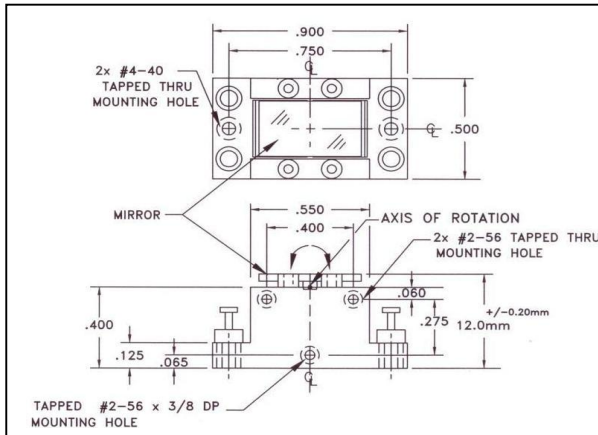
High device "Q" insures frequency stability, low reaction forces and low electrical drive power. High flexural stiffness provides good resistance to shock and vibration, as well as low wobble, and good scan repeatability. Resonating at the natural frequency makes the device an excellent candidate for 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-3 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.

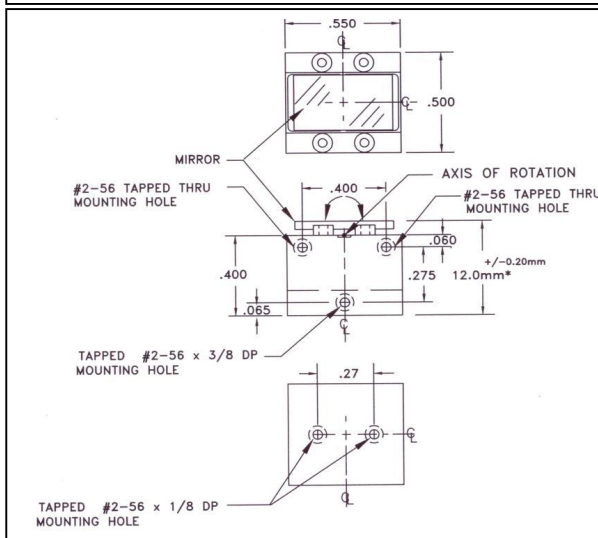
## SPECIFICATIONS:

- MIRROR:** Sizes: 6mm diameter, 7x7mm or 12x7mm  
 Thickness: 1.0mm, standard; other thickness values available  
 Flatness: 1/4 wavelength for 6mm and 7x7mm mirror, 1/2 wavelength for 12x7mm mirror  
 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
- 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 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

### SC-3:



### SC-3-SH:



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

### 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%
SC3-2 OR SC3-SH-2	50°	12x7 7x7 6 dia	110 180 250
SC3-3 OR SC3-SH-3	40°	12x7 7x7 6 dia	180 285 400
SC3-4 OR SC3-SH-4	30°	12x7 7x7 6 dia	265 430 600
SC3-5 OR SC3-SH-5	20°	12x7 7x7 6 dia	385 600 830

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. SC3-SH-2-7x7-50-180. This part number specifies the model SC-3-SH-2 scanner, a 7mm square mirror, a 50° peak to peak optical scan and a 180 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.**