



ELECTRO-OPTICAL PRODUCTS CORP.

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RESONANT OPTICAL SCANNER

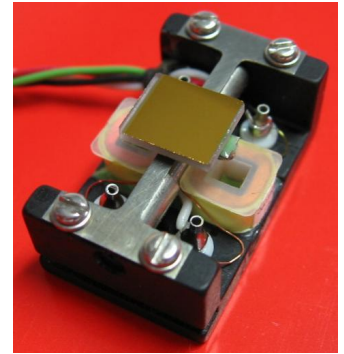
SC-5

LOW COST SUB-MINIATURE SCANNER

FEATURES AND ADVANTAGES:

- *ONE FIXED FREQUENCY from the range of 100 Hz to 1.5 kHz
- *Mirror size up to 10x10mm
- *Scan angle to 50° peak to peak optical
- *Small size/lightweight
- *Low power drive electronics
- *Rugged, no wearing parts
- *Maintenance free
- *High reliability
- *Withstands shock and vibration
- *High frequency stability (to 0.01%)
- *High/low temperature operation (cryo to 200°C)¹
- *Vacuum operation (to 10⁻¹⁰ Torr)¹
- *Jitter free operation
- *No radiated electromagnetic interference (EMI)
- *Reference signal available
- *IR, VIS & UV¹
- *Glass mirrors are standard, metal mirrors, gratings, prisms, lenses or 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 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. Operation at the resonant frequency is sustained by a feedback amplifier, the **AGC** driver or the **ED** driver, supplied separately. The driver controls the mirror angle and provides a reference signal. The **PLD-1S** driver will phase lock the device to an external stable source. The **PLD-2S** driver will lock two scanners in a master/slave mode and the **PLD-2SXY** driver will generate X, Y raster scans. 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 that 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.

Applications include: barcode readers, laser scanners, image and pattern forming and recognition, printers, OCT, ophthalmology, DNA sequencing, confocal microscopy, biomedical imaging, quality inspection and outer space and environmental research to name a few.

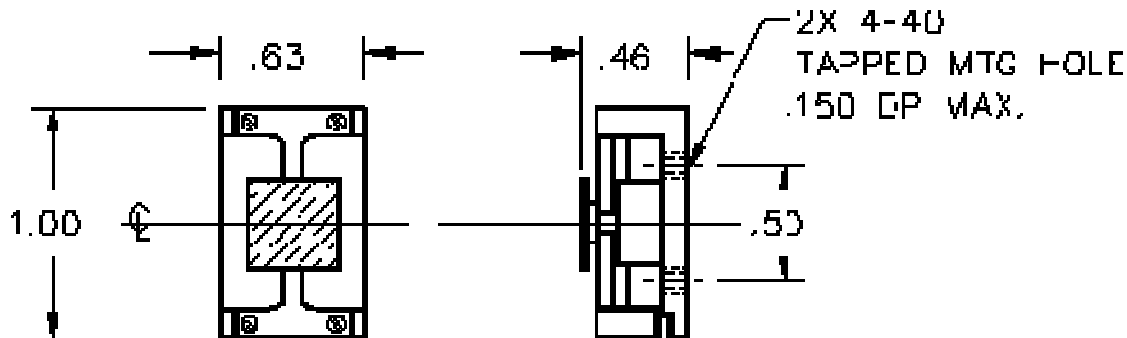
SPECIFICATIONS:

- MIRROR:** Size: 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.
 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

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

FREQUENCY Hz	SCAN ANGLE P-P DEGREES OPTICAL	MIRROR SIZE mm
100-140	50°	10x10
140-250	40°	7x7
250-400	35°	7x7
400-600	30°	7x7
600-800	24°	7x7
800-1000	20°	7x7
1000-1250	15°	7x7
1250-1500	10°	6x6

THE ABOVE SHOULD SERVE AS GUIDELINES ONLY



DIMENSIONS ARE IN INCHES
 METRIC MOUNTING OPTIONAL

ORDERING INFORMATION:

TYPE [SC-5]; MIRROR SIZE [mm]; ANGLE [P-P Deg. Optical]; FREQUENCY [Hz]
 Example: PART NO. SC5-7x7-40-200. This part number specifies the model SC-5 scanner, a 7mm square mirror, a 40° peak to peak optical scan and a 200 Hz operating frequency.

Special vane configurations, modulating waveforms and shapes are available on special order. Consult factory. Drive electronics with different packages, regulation, and reference signal and power supply options are available.

Special pricing for OEM applications.