



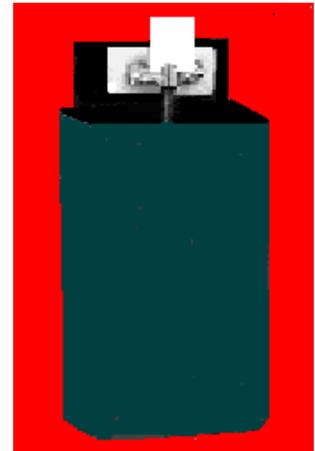
# **ELECTRO-OPTICAL PRODUCTS CORP.**

P.O. BOX 650441 . FRESH MEADOWS, NY 11365 . TEL: (718) 456-6000 . FAX: (718) 456-6050 . [www.EOPC.com](http://www.EOPC.com)

## **RESONANT OPTICAL SCANNER SC-30 HIGH FREQUENCY SCANNER**

### **FEATURES AND ADVANTAGES:**

- \***ONE FIXED FREQUENCY** from the range of 200 Hz to 16 kHz
  - \***Mirror size up to 25x25mm**
  - \***Scan angle to 30<sup>0</sup> peak to peak optical**
  - \***The axis of rotation is at the mirror surface**
  - \***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<sup>0</sup>C) <sup>1</sup>**
  - \***Vacuum operation (to 10<sup>-10</sup> Torr) <sup>1</sup>**
  - \***Jitter free operation**
  - \***No radiated electromagnetic interference (EMI)**
  - \***Reference signal available**
  - \***IR, VIS & UV <sup>1</sup>**
  - \***Glass mirrors are standard, metal mirrors, gratings, prisms, lenses or optical attachments optional <sup>1</sup>**
  - \***Use of both sides of the mirror is optional <sup>1</sup>**
- <sup>1</sup> Available as a special order



### **DESCRIPTION:**

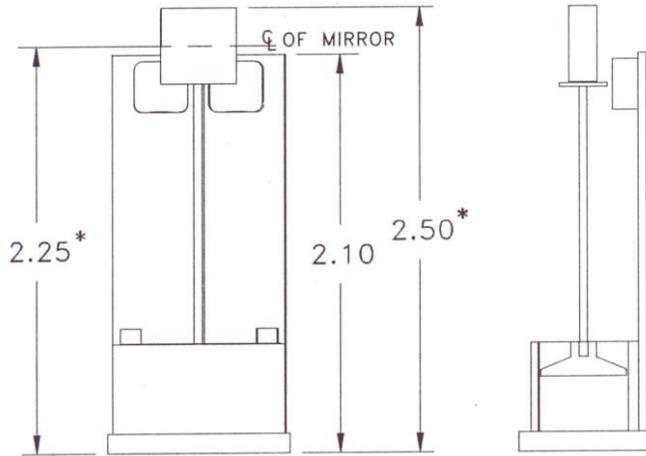
The fixed frequency resonant optical scanner is an electromagnetically driven moving mirror device which deflects a light beam with a sinusoidal motion. The mirror assembly is attached to a torsion spring. The scanning frequency range of the SC-30 type scanner is from 200 Hz to 16 kHz, **fixed at any 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<sup>0</sup>C to +65<sup>0</sup>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-30 type scanner can easily be incorporated in small size and portable instruments.

Applications include: laser scanners, printers, data recognition systems, machine vision and robotics, non-destructive imaging and testing, ophthalmology, DNA sequencing, confocal microscopy, biomedical imaging, quality inspection systems, intelligent transportation systems and biological, medical and materials research and testing, to name a few.

## SPECIFICATIONS:

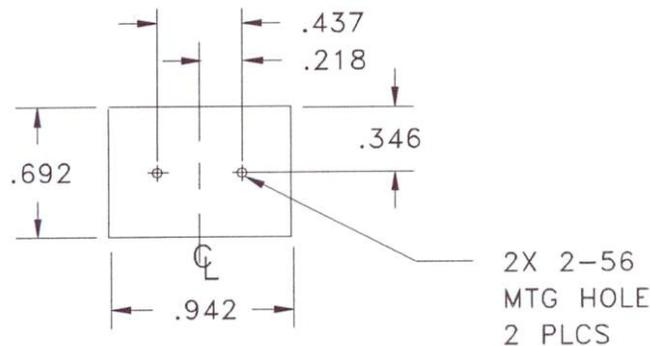
- MIRROR:** Size: to 25x25mm, as a function of frequency  
 Thickness: 1.0mm, standard; other thickness values available  
 Flatness: 1/4, 1/2 and 1 wavelength as a function of size  
 Surface quality: scratch and dig: 60-40
- ELECTRICAL:** Drive coil resistance: 17.5, 25, 75, 150 and 300 ohms as a function 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: 200 Hz to 16 kHz  
 Frequency accuracy: +/-2% at 25°C, closer accuracy available upon request  
 Scan angle: to 30° 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
200-700	30°	25x25
750-3500	20°	10x10
4000-5500	16°	8x9
6000-8000	16°	7x8
8500-10000	12°	5x6
10500-15000	8°	4x5
16000	6°	3x4

THE ABOVE SHOULD SERVE AS GUIDELINES ONLY



\*DEPENDS ON THE SIZE OF THE MIRROR

DIMENSIONS ARE IN INCHES METRIC MOUNTING OPTIONAL

## SC-30 OUTLINE DRAWING

### ORDERING INFORMATION:

TYPE [SC-30]; MIRROR SIZE [mm]; ANGLE [P-P Deg. Optical]; FREQUENCY [Hz]

Example: PART NO. SC30-4x5-3-10kHz. This part number specifies the model SC-30 scanner, a 4x5mm mirror, a 3° peak to peak optical scan angle and a 10 kHz 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.**