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° 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°C)
*Vacuum operation (to 10^-10 Torr)
*Jitter free operation
*No radiated electromagnetic interference (EMI)
*Reference signal available
*IR, VIS & UV
*Glass mirrors are standard, metal mirrors, gratings, prisms, lenses or optical attachments optional
*Use of both sides of the mirror is optional

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°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 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

<table>
<thead>
<tr>
<th>FREQUENCY [Hz]</th>
<th>SCAN ANGLE [P-P DEGREES OPTICAL]</th>
<th>MIRROR SIZE [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-700</td>
<td>30° 25x25</td>
<td></td>
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<tr>
<td>750-3500</td>
<td>20° 10x10</td>
<td></td>
</tr>
<tr>
<td>4000-5500</td>
<td>16° 8x9</td>
<td></td>
</tr>
<tr>
<td>6000-8000</td>
<td>16° 7x8</td>
<td></td>
</tr>
<tr>
<td>8500-10000</td>
<td>12° 5x6</td>
<td></td>
</tr>
<tr>
<td>10500-15000</td>
<td>8° 4x5</td>
<td></td>
</tr>
<tr>
<td>16000</td>
<td>6° 3x4</td>
<td></td>
</tr>
</tbody>
</table>

THE ABOVE SHOULD SERVE AS GUIDELINES ONLY

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.