



RESONANT OPTICAL SCANNER SC-21 WIDE ANGLE & LARGE MIRROR SCANNER

FEATURES AND ADVANTAGES:

- *ONE FIXED FREQUENCY from the range of 15 Hz to 2 kHz
- *Mirror size up to 60 mm long
- *Scan angle to 70° 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 & UV ¹
- *Glass mirrors are standard, metal mirrors, gratings, prisms, lenses or optical attachments optional ¹

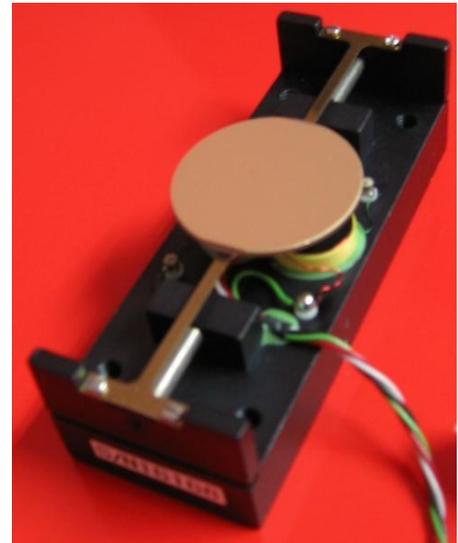
¹ Available as a special order

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 at the center of a torsion spring. The scanning frequency range of the SC-21 type scanner is from 15 Hz to 2 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 that require good imaging with minimal distortion. The scanner is especially suitable for dedicated, high volume OEM industrial applications. The SC-21 type scanner can easily be incorporated in small size and portable instruments. The device is used for large optical beams, or simultaneous imaging of multiple optical beams, where large amplitudes and moderate frequencies are desired.

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, sorting machines, intelligent transportation systems and biological, medical and materials research and testing, to name a few.



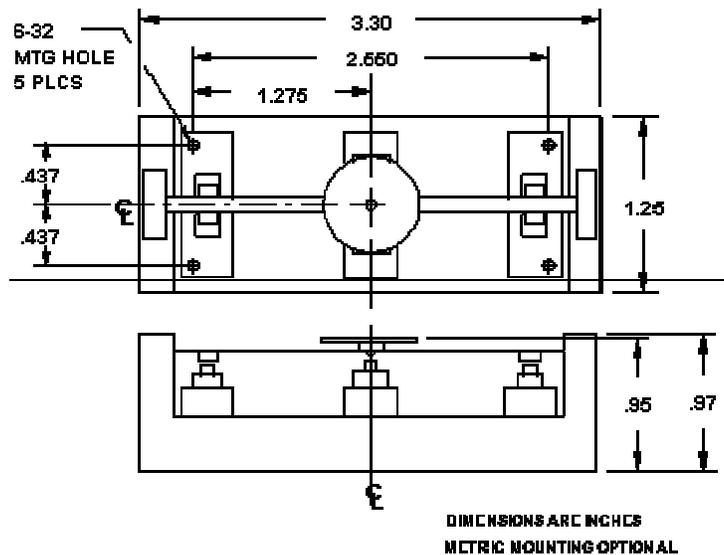
SPECIFICATIONS:

- MIRROR:** Size: to 35x35mm, 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: 50, 150, 400, 950 and 2000 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: 15 Hz to 2 kHz
 Frequency accuracy: +/-2% at 25°C, closer accuracy available upon request
 Scan angle: To 70° 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
15-200	70°	30x30
200-300	70°	20x20
300-400	60°	10x10
300-400	40°	15x15
400-1000	40°	10x10
400-1000	30°	12x12
1000-1500	30°	10x10
1500-2000	24°	8x8

THE ABOVE SHOULD SERVE AS GUIDELINES ONLY



SC-21 OUTLINE DRAWING

ORDERING INFORMATION:

TYPE [SC-21]; MIRROR SIZE [mm]; ANGLE [P-P Deg. Optical]; FREQUENCY [Hz]

Example: Example: PART NO. SC21-20x20-70-270. This part number specifies the model SC-21 scanner, with a 20x20 mirror, 70 deg peak to peak optical scan angle and an operating frequency of 270Hz.

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.