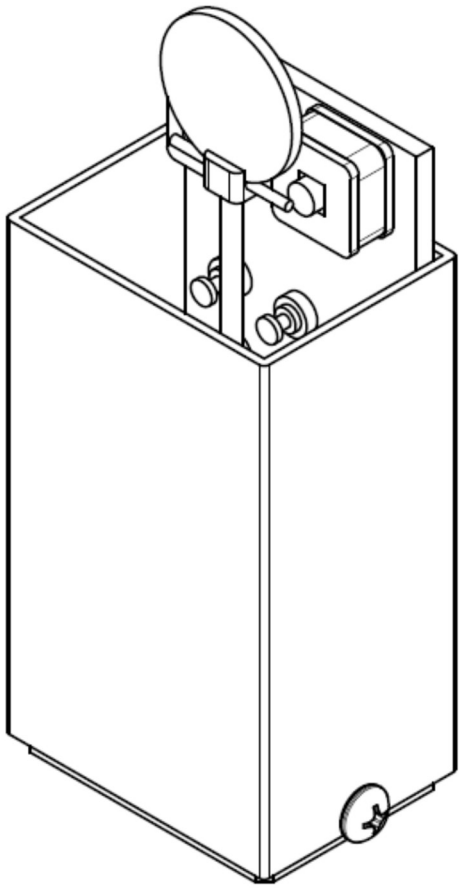
SC-30 Resonant Scanner

The SC-30 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 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 mirror size. Operation at the resonant frequency is sustained by a feedback amplifier and driver, supplied separately.

FEATURES AND ADVANTAGES

- One fixed frequency up to16 kHz
- Bi-directional scanning possible to double the frequency
- No lubrication needed, maintenance free
- Mirror size up to 25 mm x 25 mm
- Scan angle up to 30° peak-to-peak optical
- Small size/lightweight
- Low power heat dissipation
- Low power drive electronics
- Rugged, no wearing parts
- High reliability, long life
- High frequency stability
- Withstands shock and vibration
- Ultra-high vacuum operation[1]
- High/low temperature operation[1]
- Jitter free operation
- No radiated electromagnetic interference (EMI)
- Mirror position signal available
- Glass mirrors standard, metal mirrors, prisms, or lenses optional[1]



[1] Available on special order

Electro-Optical Products, Corp.
939 S. Andreasen Drive
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SPECIFICATIONS

Mechanical

Frequency range	200 Hz to 16 kHz
Scan angle	Up to 30° peak-to-peak optical, as a function of frequency and mirror size
Frequency accuracy	±2% at 25 °C, closer accuracy available upon request

Electrical

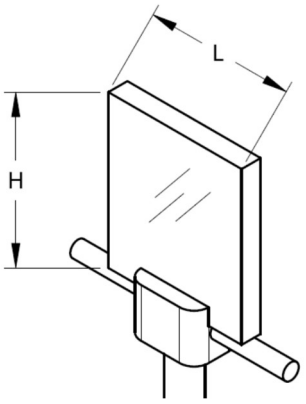
Drive coil resistance (Ω)	17.5, 25, 75, 150, or 300, as a function of frequency
Sense coil resistance (Ω)	2,000
Cable length	1 meter
Connector	Female 4-pin plug on 0.1” centers, Molex P/N 22-01-3047 or equivalent

Mirror

Size	Up to 25 mm x 25 mm, as a function of frequency
Thickness	1.0 mm; other thickness values available
Flatness	¼, ½, and 1 wavelength, as a function of size
Surface quality	60-40 scratch and dig

Typical scan frequency as a function of angle and mirror size.

Frequency (Hz)	**Scan Angle** (PTP Deg Optical)	**Mirror Size** (L x H mm)
500	35°	20 x 20
1,000	25°	15 x 10
2,000	20°	10 x 10
4,000	20°	8 x 9
5,000	20°	7 x 8
6,000	16°	6 x 7
8,000	16°	5 x 6
10,000	10°	4 x 5
12,000	8°	4 x 5
15,000	6°	4 x 5
16,000	6°	3 x 4



THE ABOVE SHOULD SERVE AS GUIDELINES ONLY

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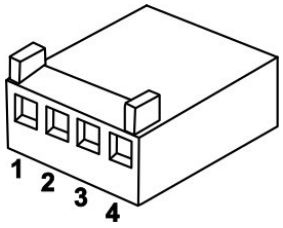
CONTROL SIGNALS

The SC-30 includes a 4-pin female Molex connector (PN 22-01-3047 or equivalent) for signal transmission.



Pins 1 and 4 receive a drive signal at the scanner's resonant frequency. Pins 2 and 3 output a sense signal relating to the mirror's position.

DRIVERS

EOPC manufactures the following specialized drivers to operate the SC-30.

AGC Driver: Provides superior amplitude stability (0.01%), the AGC driver provides a sine wave reference signal for position output, TTL level square wave reference signal, and adjustment of the phase relationship between the mirror position and output signals.

PLD-1S Driver: Achieves synchronization to an external clock input. Perfect for scenarios where synchronization of the scanner to other system components is paramount.

PLD-2S Driver and **PLD-2SXY Driver:** These two drivers enable synchronized operation of two scanners, creating patterns such as circles, ellipses, and raster scans.

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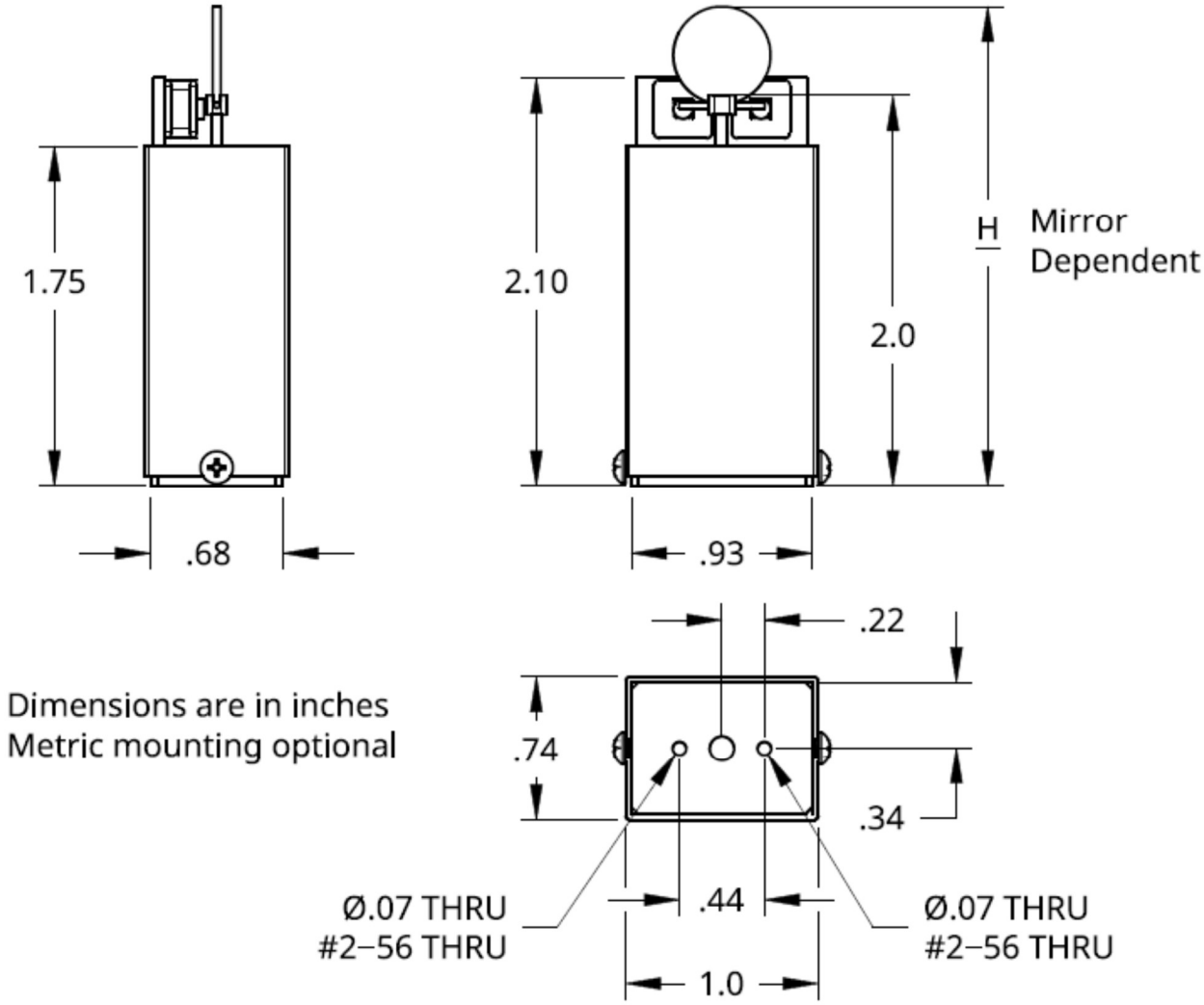
DRAWINGS



ORDERING INFORMATION

TYPE [SC-30]-MIRROR SIZE [mm] (MIRROR TYPE [Al-Aluminum, Ag-Silver, Au-Gold])-ANGLE [P-P Deg. optical]-FREQUENCY [Hz]

Example: PART NO. SC30-4x5(Ag)-6-16000. This part number specifies the model SC-30 scanner, a 4x5mm silver mirror, a 6° peak to peak optical scan angle and a 16kHz operating frequency.

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