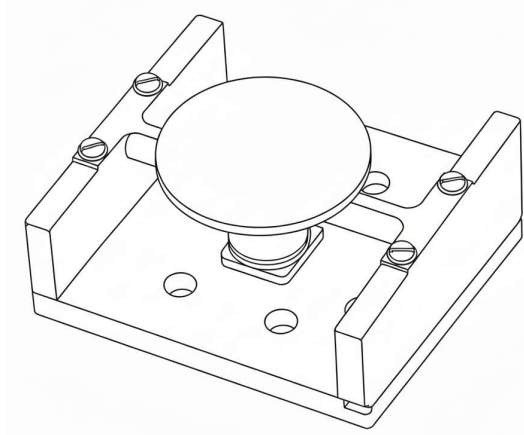


## SC-20 Resonant Scanner

The SC-20 resonant scanners are low-cost, compact-size components especially suited for high volume OEM and for custom industrial applications. 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 spring. The scanning frequency range of the SC-20 type scanner is from 5 Hz to 1.5 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 and driver, supplied separately.

### FEATURES AND ADVANTAGES

- One fixed frequency from 5 Hz to 1.5 kHz
- No lubrication needed, maintenance free
- Mirror size up to 30 mm long
- Scan angle up to 60° 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<sup>1</sup>
- High/low temperature operation<sup>1</sup>
- Jitter free operation
- No radiated electromagnetic interference (EMI)
- Mirror position signal available
- Glass mirrors standard, metal mirrors, prisms, or lenses optional<sup>1</sup>



<sup>1</sup> Available on special order

# SC-20 Resonant Scanner

## SPECIFICATIONS

### Mechanical

<b>Frequency range</b>	5 Hz to 1.5 kHz
<b>Scan angle</b>	Up to 60° peak-to-peak optical, as a function of frequency and mirror size
<b>Frequency accuracy</b>	±2% at 25 °C, closer accuracy available upon request

### Electrical

<b>Drive coil resistance (<math>\Omega</math>)</b>	50, 150, 400, 950, and 2000, as a function of frequency
<b>Sense coil resistance (<math>\Omega</math>)</b>	950
<b>Cable length</b>	1 meter
<b>Connector</b>	Female 4-pin plug on 0.1" centers, Molex P/N 22-01-3047 or equivalent

### Mirror

<b>Size</b>	Up to 25 mm x 25 mm, as a function of frequency
<b>Thickness</b>	1.0 mm; other thickness values available
<b>Flatness</b>	$\frac{1}{4}$ , $\frac{1}{2}$ , and 1 wavelength, as a function of size
<b>Surface quality</b>	60-40 scratch and dig

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

<b>Frequency</b> (Hz)	<b>Scan Angle</b> (PTP Deg Optical)	<b>Mirror Size</b> (L x H mm)
5-32	60°	25 x 25
33-95	50°	25 x 25
96-140	40°	20 x 20
140-400	40°	10 x 10
400-600	30°	10 x 10
600-800	24°	8 x 8
800-1,000	20°	8 x 8
1,000-1,250	15°	8 x 8
1,250-1,500	10°	7 x 7

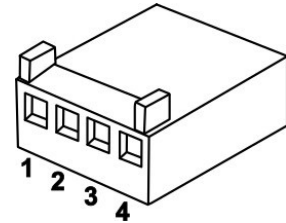
THE ABOVE SHOULD SERVE AS GUIDELINES ONLY

# SC-20 Resonant Scanner

## CONTROL SIGNALS

The SC-20 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.

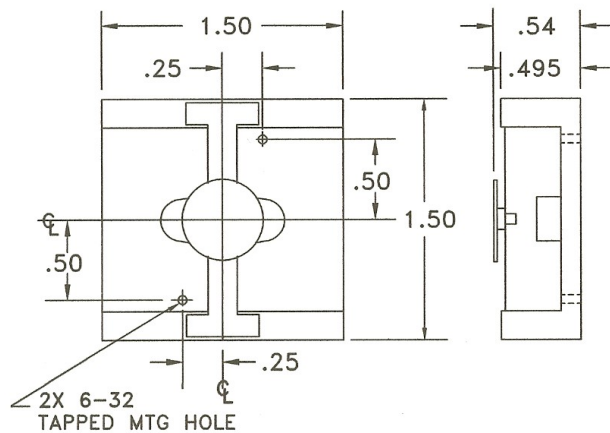
**PLD-1S Driver:** Achieves synchronization to an external clock input. Perfect for scenarios where synchronization of the scanner to other system components is paramount.

**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.



# SC-20 Resonant Scanner

## DRAWINGS



DIMENSIONS ARE IN INCHES  
METRIC MOUNTING OPTIONAL

## ORDERING INFORMATION

TYPE [SC-20]; MIRROR SIZE [mm]; (MIRROR TYPE [Al-Aluminum, Ag-Silver, Au-Gold]);  
ANGLE [P-P Deg. Optical]; FREQUENCY [Hz]

Example: PART NO. SC-20-10x10(Ag)-20-100. This part number specifies the model SC-20 scanner, a 10x10mm silver mirror, a 20° peak to peak optical scan angle and a 100 Hz operating frequency.

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# SC-20 Resonant Scanner

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