



SC-SYS-XYG SCANNING SYSTEM LOCKS A RESONANT SCANNER WITH A GALVANOMETER TO GENERATE RASTER SCAN



DESCRIPTION:

The XYG scanning system generates a raster scan (X and Y, like a TV screen). The PLD-XYG driver locks a resonant scanner ("X") with a galvanometer (analog scanner, $\delta Y \delta$) to generate a raster scan. The basic raster scanning system we manufacture consists of the following: a resonant scanner, a galvanometer scanner, amount for both scanners and a driver box. Additional features are optional.

You can use any of the resonant scanners we manufacture for the "X" direction however the Model SC-30 high frequency resonant scanner is chosen most often. The high speed resonant scanner model SC-30 has a continuous sine wave motion. The resonant frequency of the scanner is determined by the number of lines required for each frame multiplied by the required frame rate.

e.g.:

For 525 lines per frame and a frame rate of 30Hz the resonant frequency of the X scanner (high frequency) is determine as follows: $525 \times 30 = 15.75 \text{ KHz}$. If the resonant scanner is used in both directions of the sine wave, clock wise and counter clock wise, it generates two lines for each cycle and the frequency of the X scanner in this case is 7.875 KHz . The advantage is that you can use a larger size mirror. Please note that the higher the frequency the smaller the mirror size. The resonant scanner model SC-30 at 8 KHz and 16 KHz are the most popular scanners, they are the most suitable to meet the line scan high resolution requirements for TV/HDTV. Resonant scanners offer very low cross axis wobble and scan-to-scan repeatability is well below a few arc sec PTP optical. We manufacture many models of resonant scanners that would fit XYG raster scanning systems and they are available in a variety of frequencies, optical scan angles and frame rates. Special configurations, waveforms and shapes are available as a special order (consult factory).

The frequency of the galvo scanner (the frame rate for the Y axis) is generated from the resonant scanner. It is a ramp type of wave form (constant speed) with a fast flyback.

The PLD-XYG driver has analog position output for the X and Y scanners with optional remote scan angles (amplitude) control. The PLD-XYG driver is fully integrated with front panel scan angle controls (remote controls are optional). The driver operates the resonant scanner (X axis, high frequency) in a self-oscillating mode, at the resonant frequency of the scanner, and is also generating the Y signal form in a phase locked mode to drive the galvo scanner (Y axis, low frequency). No external function generator is needed to operate the XYG system. For OEM manufacturing we may consider providing free information to build the driver so that you can incorporate it within your drive electronics or build it to a desired size.

CHARACTERISTICS:

Frequency range for the X axis: 10 Hz to 16 kHz.

Frequency range for the Y axis: DC to 100 Hz.

Position monitor: Analog position output, 0.1% accuracy.

Scannersøamplitude stability: .01%.

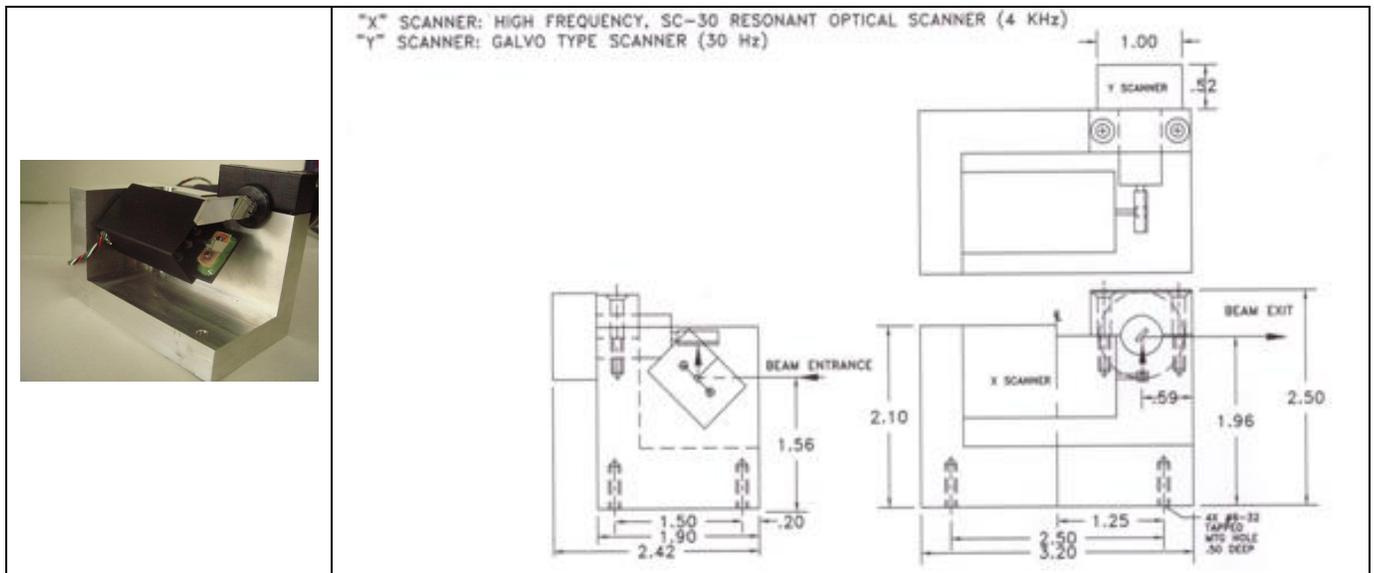
Phase stability: .01%

Frequency ratio F_x/F_y (=lines per frame): factory set to customerø spec.

Operating temperature range: 0-60°C.

APPLICATIONS:

X,Y scanning systems provide inexpensive high performance for limitless applications involving beam deflection: TV, HDTV, for 2D and 3D imaging, lithography, color separation, high resolution display systems, laser scanning, inspection systems and high speed, high resolution display system and machine vision. Many applications are in the IR & UV wavelength, high vacuum or cryogenic conditions. The scanner withstands shock and vibration, it can be mounted on moving vehicles, moving arms of an inspection system or a robot.



ORDERING INFORMATION:

A) SCANNER INFORMATION:

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

Enhanced aluminum protective coated mirror is our standard mirror

Gold coated (protected) and silver coated (protected) mirrors, beryllium/metal mirrors, are optional or customer supplied.

Example: PART NO. SC30-10x10-20-4000. This part number specifies the model SC-30 scanner, a 10mm square mirror, a 20° peak to peak optical scan angle and a 4000 Hz operating frequency.

Special configurations and elements other than mirrors are available on special order. Consult factory.

B) GALVO INFORMATION:

The frame rate (the ratio of the frequency of scanner X to the frequency of scanner Y).

Mirror for galvo:

Silver mirror is standard.

C) LASER (SOURCE): BEAM SIZE [mm]; BEAM POWER; WAVELENGTH [nm];

D) FRAME RATE

E) NUMBER OF LINES PER FRAME

Special pricing for OEM applications.