ELECTRO-OPTICAL PRODUCTS CORP.
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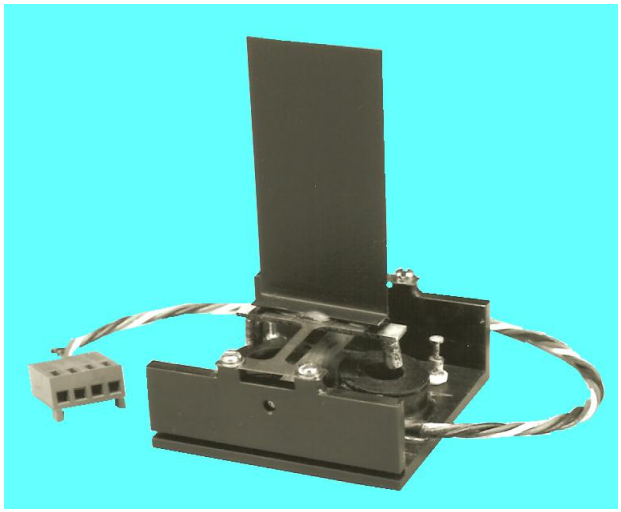
RESONANT OPTICAL MODULATOR
CH-30
TAUT BAND CHOPPER

FEATURES AND ADVANTAGES:

***ONE FIXED FREQUENCY from the range of 5 Hz to 100 Hz**
***Angular motion up to 30°**
***Small size/lightweight**
***Withstands shock and vibration**
***Low power drive electronics**
***Rugged, no wearing parts**
***Maintenance free**
***High reliability**
***High frequency stability (to 0.005%)**
***High amplitude stability <.01%**
***Vacuum operation (to 10^{-10} Torr) [1]**
***High/low temperature operation (Cryo to 200°C) [1]**
***Jitter free operation**
***No radiated electromagnetic interference (EMI)**
***Reference signal available**
***Metal vanes are standard, mirrors, prisms, gratings or lenses optional [1]**

[1] Available as a special order



DESCRIPTION:

The FIXED FREQUENCY resonant optical modulator (taut band type chopper) is an electromagnetically driven moving vane device that reflects or blocks a light beam with a sinusoidal motion. The vane assembly is attached at the center of a torsion spring. The chopping frequency range is from 5 Hz to 300 Hz, **fixed at any frequency** within the range. The angular motion is inversely proportional to the frequency, and is a function of the vane size. The device is operation at the natural resonant frequency, and is sustained by a feedback amplifier, the **AGC** driver or the **ED** driver, supplied separately. The driver controls the aperture and provides a reference signal. The **PLD-1C** driver will phase lock the device to an external stable source. The **PLD-2C** driver will lock two choppers in a master/slave mode.

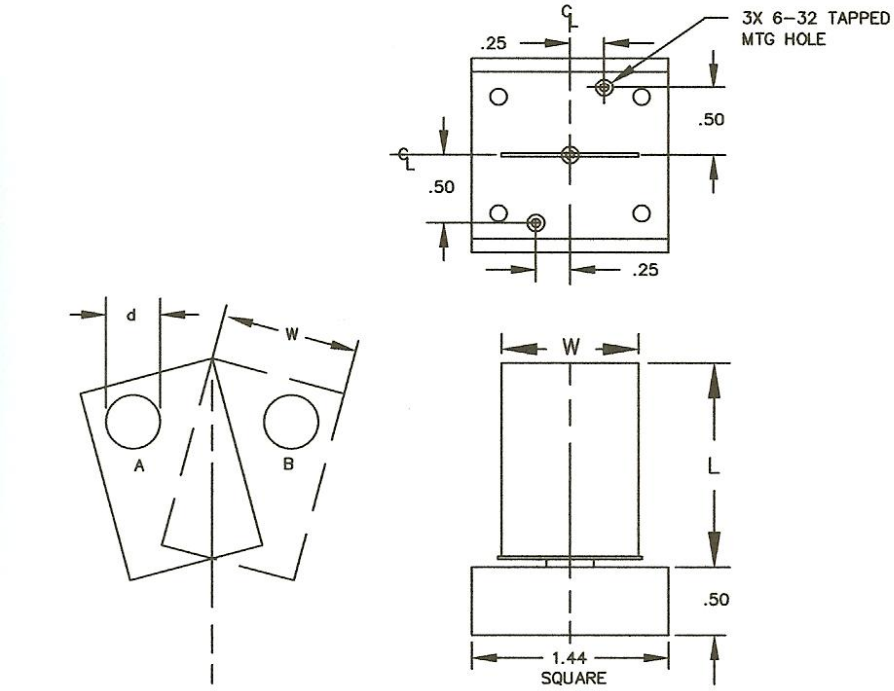
The amplitude is controlled by electronic limiting in the amplifier and is manually adjustable by means of a trim pot control. The standard operating temperature is 0°C to +65°C, a wider temperature range is available. The choppers are cryogenic and high temperature (200°C) capable. Vanes are normally supplied in stainless steel approximately .005 thick and with an optical black paint finish. Bright finish is available. Choppers can be constructed of low outgassing materials for ultra high vacuum (10^{-10} torr) applications. The vane can be replaced with a mirror. Other optical devices such as detectors, emitters, filters (single or multiple) can be oscillated, in some cases they can be attached to the vane. A fine conductor (or conductors) can be attached along the spring. Consult factory.

The CH-30 is an excellent candidate for long life, space and other low power applications. The choppers are especially suitable for long life, dedicated applications, OEM and built into an instrument/system.

The chopper can modulate one beam ("A") up to diameter "d" or alternately chop two beams ("A" and "B") up to diameter "d". The following frequencies have been chosen because they are less affected by power frequencies. However, other frequencies are available in the range of 6.5 Hz to 100 Hz.

The following should serve as guidelines only (other frequencies are available upon request):

	ANGULAR MOTION	VANE		d
FREQUENCY	AT TOP OF VANE	WIDTH	LENGTH	HOLE DIA
Hz	P–P DEGREES	Inches	Inches	Inches
6.5	30°	1.00	1.50	.60
13	30°	1.00	1.50	.60
25	30°	.78	1.25	.60
40	25°	.78	1.00	.40
100	15°	.30	.40	.30
THE ABOVE SHOULD SERVE AS GUIDELINES ONLY				



METRIC MOUNTING OPTIONAL

CH-30 OUTLINE DRAWING

ORDERING INFORMATION:

TYPE [CH-30]; VANE [B=bright or D=dark]; FREQUENCY [Hz]; VANE SIZE [W, L]; ANGULAR MOTION [P-P Deg.]
Example: CH30-D50-1x1.5-30 specifies the CH-30 chopper with a dark vane, 50 Hz operating frequency, a one (1) inch wide x 1.5-inch long vane, and 30° peak-to-peak angular motion.

Special vane configurations, modulating waveforms and shapes are available as a special order. Consult factory. Drive electronics with different package, regulation, and reference signal and power supply options are available upon request.

Special pricing for OEM applications.