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**Model 33 C & S  
AUTO BIAS CONTROLS  
DATA SHEET 725**

## **MODEL 33C AUTOMATIC BIAS CONTROL (CONTINUOUS)**

The Model 33C automatic bias control is useful in CW systems such as video and audio disc mastering. In this type (see figure below), the average input optical power is sampled and compared with a sample of the average modulated optical power. This 2:1 ratio in average levels is maintained by the high gain, negative feedback loop which sets the modulator's operating point at the 50 % transmission level.

## **MODEL 33S AUTOMATIC BIAS CONTROL (SAMPLED)**

The Model 33S automatic bias control accessory is useful in system applications employing uni-polar input signals, i.e. the modulator is biased at a null or a maximum (see figure below). For its operation, the Model 31 photodiode and Model 32 photodiode amplifier are required, along with a blanking interval of at least 20 microseconds, repeated at least every second.

During the blanking interval, two pulses are injected into the driver amplifier. They are identical in amplitude, 180 degree out of phase and separated in time by 2 microseconds. Sample and hold circuits examine the amplitude of each detected pulse and produce a DC voltage proportional to the amplitude of the pulse. This voltage is then fed to an operational amplifier which, in turn drives the bias supply in a direction necessary to minimize the amplitude error existing between the detected pulses.

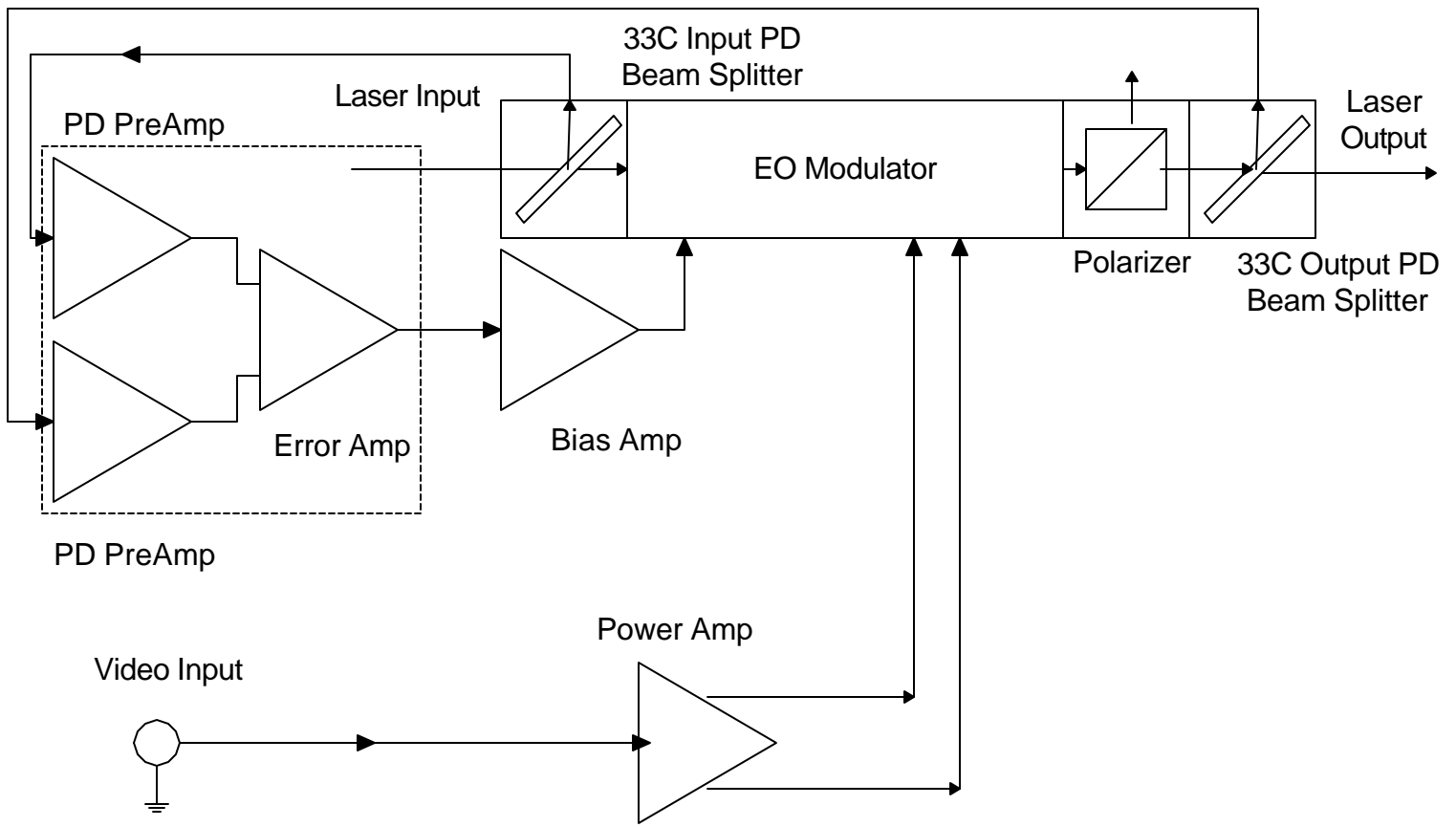


Fig 1 Continuous Auto-Bias Control Operation

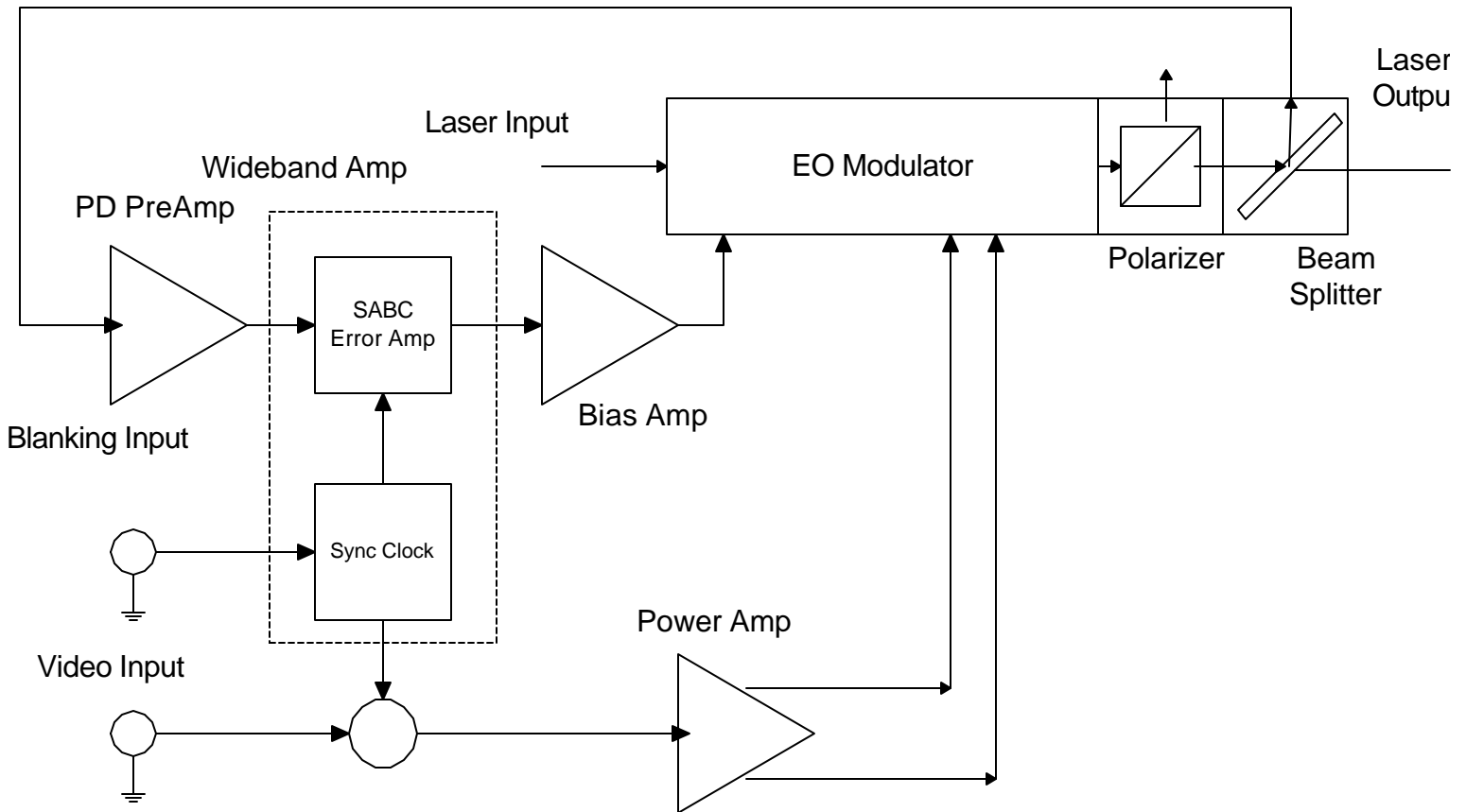


Fig 2 Sampled Auto-Bias Control Operation