PROGRAMMABLE PRECISION AC SOURCE

Many techniques are available for providing precision DC references and precision program-mable DC references. The programmable DC reference in reality is a digital to analog converter.

It can be difficult to secure an amplitude stable source of AC and even more difficult to provide a programmable output. However, the SWR200 combined with the availability of precision multiplying digital to analog converters (DAC's) which can accept bipolar inputs makes creating a programmable AC reference much easier.

In this application, the SWR200 is simply used as a reference for a high accuracy 16 bit multiplying DAC. The circuit example is shown in Figure 1.

The SWR200 provides the reference input for the AD569 which is capable of full four-quadrant operation. The output voltage is a function of the digital code input to the AD569 according to the following equation:

$$AC\ Vo\ =\ \frac{DIG.\ INPUT}{2^{16}}\ \ x\ \ Vref$$

In applications where the final output may need to be scaled up for voltage or current, an external power op amp may be used. See the connection shown in Figure 2. This scaling method can be used to provide very high levels of programmable voltage or current. For further information on connections to the AD569, refer to the Analog Devices data sheet.
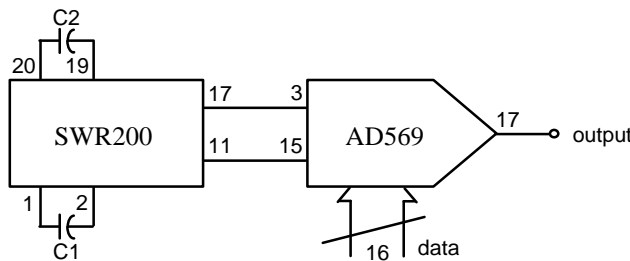

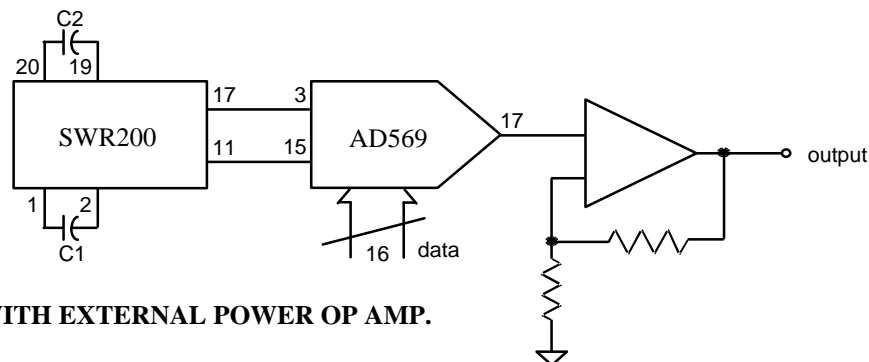
FIGURE 1. SWR200 AS EXTERNAL REFERENCE FOR MULTIPLYING DAC.

FIGURE 2. SWR200 WITH EXTERNAL POWER OP AMP.