

Small Instrumentation Modules

SIM985 — Analog multiplier

- True four-quadrant analog multiplication
- 5 MHz bandwidth
- $\pm 0.1\%$ + 5 mV maximum DC error
- Low distortion (< -70 dBc, $f < 5$ kHz)
- 120 V/ μ s slew rate



SIM985 Analog Multiplier

The SIM985 is a true four-quadrant analog multiplier with a bandwidth of up to 5 MHz. The front-panel X and Y inputs have a range of ± 10 V, and the output is $(X \times Y)/10$ V. The SIM985 can be used as a stand-alone analog multiplier, but it can also be used as a ‘building block’ in combination with other SIM modules (SIM960 PID Controller, SIM980 Summing Amplifier, SIM983 Scaling Amplifier, SIM984 Isolation Amplifier, etc.) to make a variety of more elaborate analog systems.

Specifications

Input range	± 10 V	THD	< -70 dBc ($X = +10$ VDC, $Y = 7$ Vrms, $f < 5$ kHz)
Input impedance	1 M Ω	Bandwidth (-3 dB)	DC to 5 MHz, 500 kHz, 50 kHz, 5 kHz, or 500 Hz (jumper selectable)
Input protection	± 20 VDC	Source impedance	50 Ω
Input offset	Front panel trim	Noise @ 1 kHz (typ.)	1 μ V/ $\sqrt{\text{Hz}}$, referenced to output
Transfer function	$V_{\text{out}} = (V_x \times V_y) / 10$ V	Offset	Front panel trim
Slew rate (typ.)	120 V/ μ s for both inputs and outputs	Connectors	
DC accuracy	$< \pm(5 \text{ mV} + 0.1\% \times V_{\text{out}})$ ($-10 \text{ V} \leq V_x, V_y \leq +10 \text{ V}$)	Inputs	2, X and Y (BNC)
		Outputs	2, front and rear panels (BNC)
		Power	DB-15 (male) SIM interface
		Operating temperature	0 $^{\circ}$ C to 40 $^{\circ}$ C, non-condensing
		Power	± 15 V (150 mA, 350 mA short-circuit)
		Weight, Dimensions	1.5 lbs., 1.5" $\times$ 3.6" $\times$ 7.0" (WHD)
		Warranty	One year parts and labor on defects in materials and workmanship

Ordering Information

SIM985 Analog multiplier