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Analog Devices Improves Monitoring and Protection of Smart Grid Transmission and Distribution Equipment

NORWOOD, Mass.--(BUSINESS WIRE)-- Analog Devices, Inc. today introduced a 24-bit data acquisition system-on-chip (SoC) series designed to improve the performance of protection, monitoring, and power quality measurement equipment used to manage transmission and distribution of electrical energy within smart grid systems. The AD7770 enables higher performance and smaller form factor protection relays, while the AD7771 enables power quality measurement equipment to provide early detection of power grid electrical faults. The third SoC in the series, the AD7779, ensures fast power-up in circuit breaker equipment. All three devices in the AD777x series offer the industry's best combination of dynamic range and data throughput and feature eight simultaneous sampling channels that measure the output from current and voltage sensors in three-phase power applications. Each SoC channel achieves 112-dB of dynamic range at 8 kSPS, enabling the consolidation of protection and measurement functions on a single A/D converter channel. The AD777x series also includes an integrated sample rate converter, which simplifies the design challenge associated with making the power quality equipment compliant with the IEC61000-4-30 Class A standard.

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  http://www.analog.com/AD7770
  http://www.analog.com/AD7771
  http://www.analog.com/AD7779
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The AD777x series incorporates a programmable gain amplifier (PGA) to scale various sensor outputs, allowing system designers to use a common platform for applications with different accuracy requirements and input sensor types, including current transformers, potential transformers, and resistive strings. Additionally, the AD777x series lowers total system cost by eliminating the need for external components such as signal conditioning amplifiers and phase-locked loops (PLLs). The entire AD777x series incorporates sample rate converters that enable the fine adjustment of the sampling rate and maintain coherency to a 0.01Hz change in line frequency over a 50Hz (-15%) to 60Hz (+15%) range. This is a requirement for the IEC61000-4-30 Class A power quality standard.

The new devices also incorporate a number of on-chip diagnostic features that ease the design process for end-equipment safety integrity level (SIL) certification. An additional low-resolution SAR A/D converter channel operates from a separate power supply and provides data for system and chip diagnostics, improving confidence in data integrity and boosting overall system reliability. The AD7771's high dynamic range, coupled with a high sampling rate, enables the reduction of the fast Fourier transform (FFT) noise floor. This enhances the detection of abnormal frequency spurs, which can signal a developing electrical fault, and enables early warning detection and preventative maintenance by power quality measurement equipment.

Pricing and Availability

Product	Input Bias	Output Data Rate	Sample Availability	Full Production	Price Each Per 1,000	Packaging
AD7770	±4 nA	32 kSPS	Now	May 2016	$6.97	64-lead LFCSP
AD7771	±4 nA	128 kSPS	Now	May 2016	$7.94	64-lead LFCSP
AD7779	±2 nA	16 kSPS	Now	January 2016	$5.90	64-lead LFCSP

About Analog Devices

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