

# ADE9000 POWER QUALITY MONITORING AFE

An integrated solution that reduces the complexity and high cost of power quality measurement.



## Applications



- ▶ Power quality analyzers
- ▶ Protective devices
- ▶ Machine health
- ▶ Polyphase meters

## Accuracy

Faster and more comprehensive measurements that comply with industry power quality standards such as IEC 61000-4-30 Class S. Highest accuracy over widest dynamic range for 3-phase power quality applications. Supports a rich set of metrology and power quality measurements.

## Scalability

Part of a common platform that is scalable to power quality applications (ADE9000) and utility meter applications (ADE9078). Enables 3-phase energy meter platforms that meet a range of accuracies (Class 1.0, Class 0.5, and Class 0.2).

## Reduced System Cost

Integrates high performance ADCs with low drift overall gain ( $\pm 25$  ppm/ $^{\circ}$ C) and a DSP core. Reduces the complexity and cost associated with system design using discrete components and custom power quality algorithm development.

## ADE9000 Overview

The ADE9000 is a fully integrated energy monitoring device that interfaces with both current transformer (CT) and Rogowski coil sensors. It is ideal for 3-phase metrology platforms that require high performance and advanced power quality measurements.

The ADE9000 offers an integrated flexible waveform buffer that stores samples at a fixed data rate or a sampling rate that varies based on line frequency to ensure 128 points per line cycle. These two options make it easy to implement harmonic analysis in an external processor according to IEC 61000-4-7.

Advanced utility meters benefit from the additional power quality features like  $10/12$  cycle rms measurements and sag/swell based on rms values computed every half cycle. The ADE9000 supports advanced metering specifications such as EN 61000-4-30.

### Features

Advanced metrology and power quality

- ▶ Support for all polyphase utility meter measurements
- ▶ Enable implementation of EN 61000-4-30 Class S
- ▶  $V_{rms}^{1/2}$ ,  $I_{rms}^{1/2}$  rms voltage refreshed each half cycle
- ▶  $10/12$  cycle rms
- ▶ Dip, swell monitors
- ▶ Waveform buffer holds 128 points/cycle for external analysis

High performance analog (95 dB SNR)

- ▶ Watt: 0.1% error at 5000:1; 0.2% error at 10000:1
- ▶ Voltage reference:  $\pm 25$  ppm/ $^{\circ}\text{C}$  maximum drift

Flexible sensor interface

- ▶ Multipoint CT phase/gain compensation
- ▶ Rogowski coil support

20 MHz high speed SPI

Low power: 10 mA

Temperature range:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

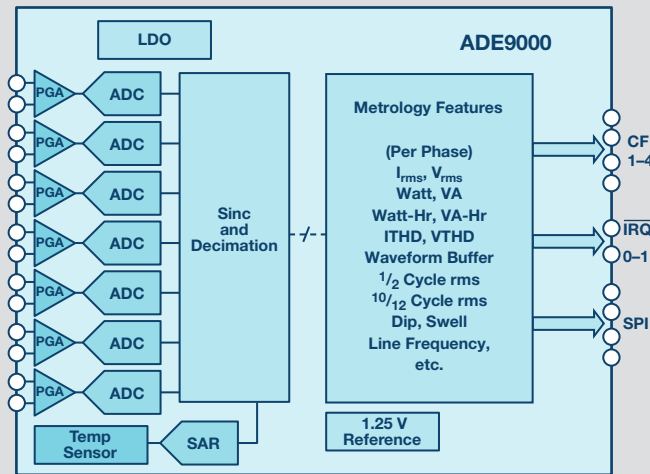


Figure 1. Functional block diagram.

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 **EngineerZone**<sup>™</sup>  
SUPPORT COMMUNITY

Analog Devices, Inc.  
Worldwide Headquarters

Analog Devices, Inc.  
One Technology Way  
P.O. Box 9106  
Norwood, MA 02062-9106  
U.S.A.  
Tel: 781.329.4700  
(800.262.5643, U.S.A. only)  
Fax: 781.461.3113

Analog Devices, Inc.  
Europe Headquarters

Analog Devices GmbH  
Otto-Aicher-Str. 60-64  
80807 München  
Germany  
Tel: 49.89.76903.0  
Fax: 49.89.76903.157

Analog Devices, Inc.  
Japan Headquarters

Analog Devices, KK  
New Pier Takeshiba  
South Tower Building  
1-16-1 Kaigan, Minato-ku,  
Tokyo, 105-6891  
Japan  
Tel: 813.5402.8200  
Fax: 813.5402.1064

Analog Devices, Inc.  
Asia Pacific Headquarters

Analog Devices  
5F, Sandhill Plaza  
2290 Zuchongzhi Road  
Zhangjiang Hi-Tech Park  
Pudong New District  
Shanghai, China 201203  
Tel: 86.21.2320.8000  
Fax: 86.21.2320.8222

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