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PARTNERZONE™ POST



Featured Partner Development: Power and Energy—Compact Size 3-Phase Control Case Study

The Challenge

Create an electrical power utility control to monitor sensors for a 3-phase distribution bus that fits in the mechanical package of an existing single phase control, leverage the extensive legacy firmware functionality, and add harmonics monitoring.

The Solution

Analog Devices integrated polyphase, multifunction energy metering IC with harmonic monitoring and a microcontroller.

The Summary

Electrical power utility companies deploy controls at strategic points throughout the electrical distribution grid to monitor loading conditions and generation capacity and stability. The branches of the power distribution grids that are the closest to the loads are where conditions are the most dynamic and are the most numerous, but are frequently space constrained. Historically, electrical power utility controls have been either smaller physical package devices that only monitor a single phase distribution bus or larger physical package devices that monitor a three phase distribution bus.

Tecnova designed an electrical power utility control for monitoring a 3-phase distribution bus that fits within the same physical package



as a single phase control. The compact size 3-phase control solution utilizes a recently developed solution from Analog Devices, a single metering IC that monitors sensing of voltage and current on a 3-phase system, and in addition to reporting simple rms parameters for voltage, current, and power, also provides reporting of harmonics and waveform capture.

In addition to unmatched embedded control expertise, Tecnova engineers have extensive experience designing numerous monitoring and control devices, that are in use throughout the world in the delivery of safe, stable, and affordable electrical power to millions of residential and industrial electrical power consumers. The compact size 3-phase control solution was made possible by combining the use of the metering IC from Analog Devices, that packs all of the powerful sensing and reporting capabilities into a single IC, with the decades of Tecnova experience and expertise in the design of electrical power utility controls.

The compact size 3-phase control solution offers an uncompromising solution of functionality and minimal device dimensions, that allows electrical power utilities to more elegantly augment the existing monitoring and control of electrical power distribution networks.

- ▶ ez.analog.com/community/partnerzone/tecnova-pz

Partner Profile: Colorado Engineering

Colorado Engineering Inc. (CEI) is a woman owned small business that develops and produces hardware, software, and system solution technologies. CEI was founded in 2003 and has engineering and production facilities located in Colorado Springs, Colorado. CEI supplies COTS hardware and software, as well as tailored solutions. The team works directly with government agencies and for commercial prime contractors. CEI has won numerous small business innovative research (SBIR/STTR) projects. CEI offers quick turn innovative solutions with lower cost and high quality while minimizing risk.

With decades of experience in engineering and management practice, CEI's leadership guides a seasoned team of engineers and professionals. Implementing AS9100 and CMMI compliant processes, CEI offers exceptional quality, reliability, and security to satisfy both commercial and government demands.

► ez.analog.com/community/partnerzone/colorado-engineering-pz



CEI Facility

Partner Highlights

Colorado Engineering

3DR computing technology brings together high performance computing, ease of programmability, low cost, and commercial I/O flexibility in a modular, open systems, and standards architecture to realize uniquely scalable and widely configurable, high speed embedded processing solutions for the development of radar, EW, SIGINT, and communication systems.

The 3DR-FPGA-ADC-10GSPS is a 4-channel, 12-bit, 10 GSPS analog-to-digital converter board, utilizing the Analog Devices AD9625 for digitizing analog inputs. High performance and low latency processing can be implemented via the on-board Altera Arria 10 FPGA.

► ez.analog.com/docs/DOC-12826



Fidus

The Fidus-designed, AD9250-based, 8-channel, 250 MSPS, 14-bit, JESD204B ADC FMC is available for ordering! It is ideal for general instrumentation and a variety of mixed-signal application developments. Fidus is an expert at enabling your system with JESD204B FPGA cores. Need a hand? Need this customized? Give Fidus a shout.

► <https://ez.analog.com/community/partnerzone/fidus-partnerzone/blog/2016/06/07/8-channel-250msps-14-bit-jesd204b-ADC-fmc>



Vanteon

Smart Grid Electronic Systems: Designing energy and resource management systems that combine wireless communications, legacy device interfaces, and compliance with emerging industry standards is a strength of Vanteon's multidisciplinary engineering and testing teams.

► ez.analog.com/docs/DOC-16478



Momentum Data Systems

MDS offers off the shelf implementations of ADV762 HDMI transceivers for crossbar matrix switching applications. These designs support separate audio and video routing, a feature pioneered by MDS, and are now found on many HDMI matrix switches. Custom designed OEM versions are available as well.

► ez.analog.com/docs/DOC-12345



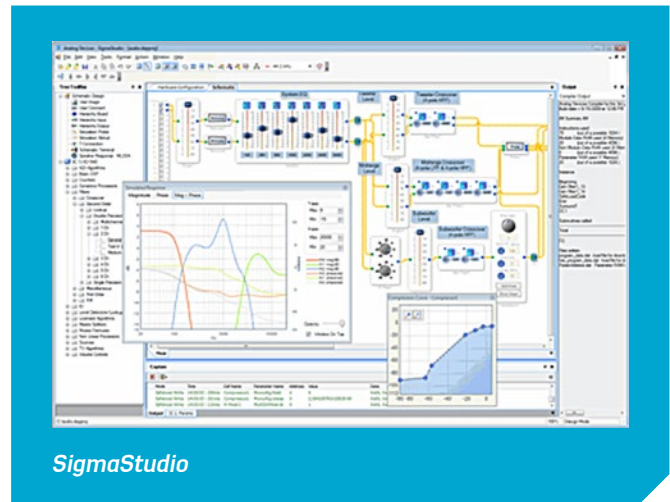
Tech Talk: Momentum Data Systems SigmaDSP for Active Speaker Systems

The availability of low cost, efficient, high performance Class-D amplifier devices in the past few years, has enabled the use of in speaker electronics for better performance, not only in subwoofers, but also in primary channels of consumer oriented audio components. The availability of ADC and DAC devices with enough dynamic range for high performance home audio has also been a key component in active (powered) speaker designs that use DSP.

While powered PA speakers for pro audio have been available for a number of years, those systems typically lacked sophisticated signal processing and had limited performance parameters.

Passive crossovers can be replaced with DSP-based filters that allow optimal matching of woofers and tweeters (two way systems), or more complex multiband drivers. With increased DSP processing not only can filters be implemented, but extra equalization to flatten the system response (or tune it for a specific sound characteristic) can be performed.

That same DSP device can also be used to implement features that protect the drivers from damage, due to thermal (overheating) effects of high power levels, as well as prevent hard clipping of the amplifier and/or excessive driver excursion, which have very audible side effects (increased distortion and heating for the former, and popping noise and/or mechanical failure for the latter). MDS has developed hardware platforms for in speaker electronics, based on Analog Devices' SigmaDSP®.



The SigmaDSP integrates a number of useful peripherals, and has a very simple and low cost power supply design. The SigmaStudio® tool allows non-DSP experts to create the DSP applications needed to achieve maximum sound performance and high sound quality from lower cost transducers.

► ez.analog.com/docs/DOC-12336

ON THE ROAD

Partners on the Road

Fidus, Indesign, Colorado Engineering, and Momentum Data Systems

CES

Las Vegas, NV
January 5th to 8th, 2017
Indesign at Booth 44536

► ces.tech

Vanteon

Distributech

San Diego, CA
January 31st to February 2nd, 2017
Booth 2546

► distributech.com

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