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PRESS RELEASE

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Yokogawa Announces the Release of Real-Time Analysis of CAN, I^2C and SPI Serial Data Buses for its DL9000 Series Oscilloscopes

Newnan, Georgia - Yokogawa Corporation of America announces that it has added new serial data bus analysis capabilities to its DL9000 series signalXplorer digital oscilloscopes. The new capabilities include standard triggering on Controller Area Network (CAN) serial data buses and optional real-time CAN protocol analysis. Additionally, DL9000 series instruments that already have the Inter-IC (I^2C) and Serial Peripheral Interface (SPI) bus analysis option can receive a free firmware update; this new firmware enables real-time analysis of I^2C and SPI buses. (Triggering on I^2C and SPI was already a standard feature on the DL9000.)

Real-time analysis is achieved using dedicated hardware inside the DL9000 that performs the bus protocol analysis and displays the results as soon as the waveform is acquired. It is not necessary to stop the acquisition before analyzing the bus waveform.

Integrating serial bus protocol analysis into a digital oscilloscope helps increase the efficiency of anyone designing or troubleshooting devices that will be used on one of these buses or designing and troubleshooting the bus itself. Instead of using a protocol analyzer to investigate protocol issues and an oscilloscope to view physical layer (waveform) behavior, an oscilloscope with integrated bus triggering and analysis provides protocol and physical layer information together, at one time, on a single instrument.

CAN Features

The new standard CAN triggering and optional CAN analysis both support high speed and low speed CAN, up to 1 Mbps. Triggering can be defined to occur on any of the following CAN events: a Start of Frame (SOF), an error frame, a user-defined standard (11-bit) identifier (ID), a user-defined extended (29-bit) ID, a user-defined data pattern up to 8 bytes long, ID and data combinations, and acknowledge (ACK).

The DL9000 analyzes up to 3,000 CAN frames. Real-time CAN analysis results include: frame type, time of frame relative to the trigger position, ID, the Data Length Code (DLC), data in binary and hex formats, the Cyclic Redundancy Check (CRC) sum, and ACK. Additional CAN features include data search, field jump and stuff bit calculation. All analyzed CAN data can be saved in ASCII format for transfer to a PC.

I^2C Features

The standard I^2C trigger function on the DL9000 supports bus speeds up to 3.4 Mbps and both 7-bit and 10-bit addressing. It also complies with System Management (SM) bus. I^2C triggers include: start conditions, user-defined address and data patterns, non acknowledgement (ACK), a general call, a start byte and the start of high speed (HS) mode.

Real-time I^2C analysis displays the following: start and stop conditions, the time of the event relative to the trigger, the data or address in hex and binary formats, indication of read or write, ACK, and indicates whether the address is 7-bit or 10-bit. Searches can be performed for a specific address or data pattern, start events, a general call, the start of HS mode and non-acknowledgement. Analyzed I^2C data can be save in ASCII format for transfer to a PC.

SPI Features

The DL9000 supports 3 wire and 4 wire versions of SPI operating in MSB and LSB configurations. Standard SPI triggering begins waveform capture based on the occurrence or absence of 1-4 bytes of user-defined data.

Real-time SPI analysis shows the SPI data in hex and binary format, the timing of each data pattern relative to the trigger point, the status of the chip select (CS) lines and the location of the start and stop of the data string. SPI data can be searched for a specific data pattern and can be saved in ASCII format for transfer to a PC

DL9000 signalXplorer Features

The DL9000 series signalXplorer oscilloscopes offer models with bandwidths of 500 MHz, 1 GHz and 1.5 GHz. The maximum real-time sampling rate is 10 GS/s for the 1.5 GHz models and 5 GS/s for the 500 MHz and 1 GHz models. Instruments can be selected with either 2.5 Mpoints of memory per channel or 6.25 Mpoints of memory per channel.

Major Target Markets

CAN: Manufacturers of automobiles, automotive electronics, automobile-related semiconductor devices, aerospace and aircraft electronics, medical equipment and devices, factory automation equipment, elevators and escalators, and others.

I^2C and SPI: Manufacturers of consumer electronics (TVs, VCRs, DVDs, set-top boxes, audio equipment, cell phones, PDAs, etc.) and semiconductors for such items, HDMI equipment, smart batteries, and others.

About Yokogawa Corporation of America

Yokogawa Corporation of America is the North American unit of $4 billion Yokogawa Electric Corporation, a global leader in the manufacture and supply of instrumentation, process control, and automation solutions. Headquartered in Newnan, Georgia, Yokogawa Corporation of America serves a diverse customer base with market-leading products including analyzers, flowmeters, transmitters, controllers, recorders, data acquisition products, meters, instruments, distributed control systems, and more.

For more information about Yokogawa Corporation of America, visit www.yokogawa.com/us/, call 770-254-0400, or toll-free at 800-258-2552, or e-mail info@us.yokogawa.com.