Features

- From 4 to 960 input channels
- Distributed master/slave configurations
- Mix 'n match signal conditioning with flexible channel mapping
- Direct transducer coupling: volts, charge, ICP®, microphones, strain gauges…
- Smart transducers (TEDS) support
- 24 bit DAC with standard and arbitrary outputs
- Tacho conditioning and tracking
- Scalable DSP performance
- User definable channel labeling
- Whisper quiet operation
- Certified to ISO 9001 quality norms

Benefits

- Optimized for LMS testing and analysis systems
- Superior modularity and scalability: configure the system you need today, add more channels, change conditioning, boost processing power…an unrivalled price/performance.
- Direct transducer connection and distributed frames: minimize transducer cabling and clutter
- Reduced set-up time and cabling errors by using smart transducers
- Higher quality data, with measurement chain integrity indication
- Parallel DSP to maintain performance as channel count increases
- Digital calibration: greater stability over an extended period, and easier module swapping
- Hardware, software, and application support from a single source

Overview

SC316 mainframe

- Number of slots: 16
- Interface: SCSI
- Power: auto ranging 88V_{AC} to 264V_{AC}
- Dimensions: 448mm (19") x 183mm (4U) x 461mm
- Includes master/slave interface

SC317 slave unit

- Number of slots per frame: 17
- Dimensions: as SC316
- Total number of slots in master/slave system: 240 max

SC309EC mainframe with embedded computer

- Number of slots: 9
- Embedded state-of-the-art PC with 1280x1024 graphics controller, Ultra DMA hard disk, floppy disk, 2 serial ports, parallel port, and external SCSI connection for peripherals
- Power and dimensions: as SC316
- Includes master/slave interface

SC310/SC310DC compact mainframe

- Number of slots: 10
- Dimensions: 336mm (3/4 19") x 183 mm (4U) x 461 mm
- Power: auto ranging 88 V_{AC} to 264 V_{AC}
- Additional wide range DC power input available on SC310DC
- Optional master/slave interface available

PQA, 4 channel voltage amp

- Input coupling: DC, AC, ICP
- Input range: from ±62.5mV to ±10V
- Includes analog A-weighting filter, overload detection and ICP check

PQFA, 4 channel floating amp

- Input coupling: DC, AC, ICP in single ended or floating mode
- Input range: from ±62.5mV to ±10V
- High-pass filter: 2-pole with cut-off from 5Hz to 75Hz
- Includes overload detection, ICP check and TEDS interface

PQCA, 4 channel charge amp

- Input coupling: charge
- AC coupling: 0.5Hz and 5Hz
- Input range: from ±25pC to ±51200pC

PQMA, 4 channel microphone amp

- Input coupling: AC, DC, ICP, MIC
- Input range: from ±10mV to ±25V
- Microphone supply: 0V or 200V polarization, ±28V pre-amplifier supply
- High-pass filter: 2-pole with cut-off from 5Hz to 75Hz
- Includes overload detection and ICP check

PQBA: 4 channel bridge amp

- Input coupling: DC
- Input range: from ±1mV to ±1V
- Bridge configuration: full, half and quarter bridge
- Bridge completion: 120W and 350W
- Balancing: by current injection

SP90: 4 channel ADC/DSP

- ADC: 16-bit ΣΔ, 204.8kHz sampling per channel
- Analog anti-alias filter: 5 pole ETD
- Bandwidth: 90kHz maximum
- Processing functions: decimation filters, digital AC coupling, order tracking, third octave, RMS and absolute maximum

QDAC: 4 channel output module

- DAC: 24bit bitstream
- Bandwidth: 20kHz maximum
- Output functions: random, sine, stepped sine, chirp, burst, user

DDAC: 2 channel output module

- As QDAC but with 2 output channels

VDAC: 2 channel output for VIBCO and durability applications

- DAC: 18-bit
- Attenuator: 0-80dB
- Bandwidth: 20kHz maximum
- Protection: slow shutdown at power-fail or external command
- Ouput functions: random, sine, stepped sine, burst, user

PDT: 2 channel tacho module

- Tacho input: autoranging differential
- Counter clock: 26MHz
- Pre-view: via 2 on-board ADC's

CE

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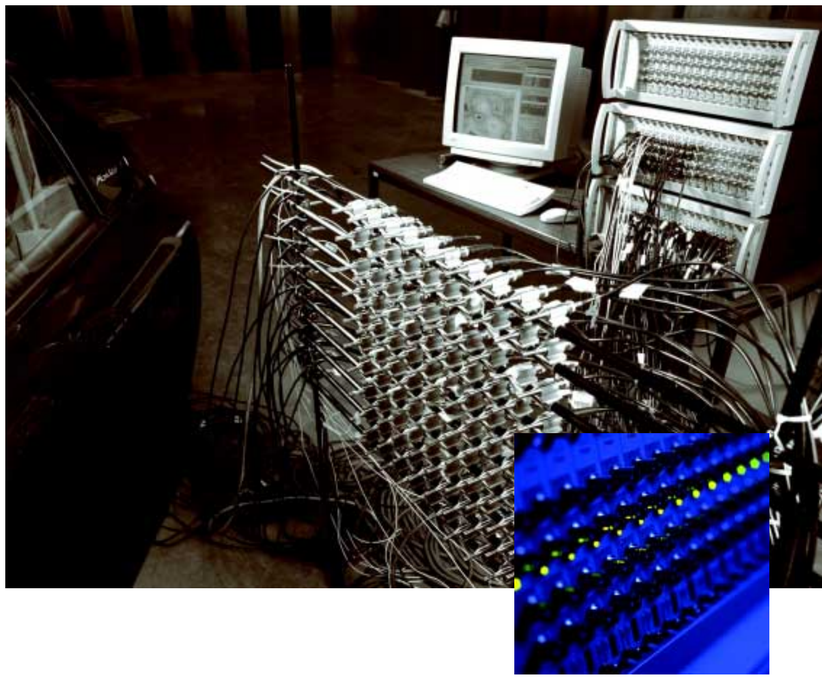
LMS SCADAS III

Multichannel Dynamic Data Acquisition



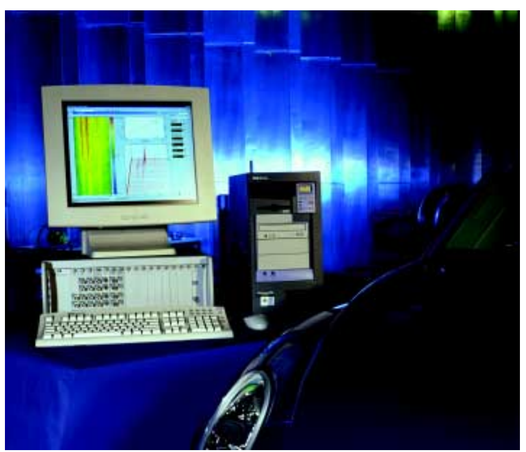
LMS INTERNATIONAL
Empowering Engineering Innovation

LMS SCADAS III
Signal Conditioning and Data Acquisition System

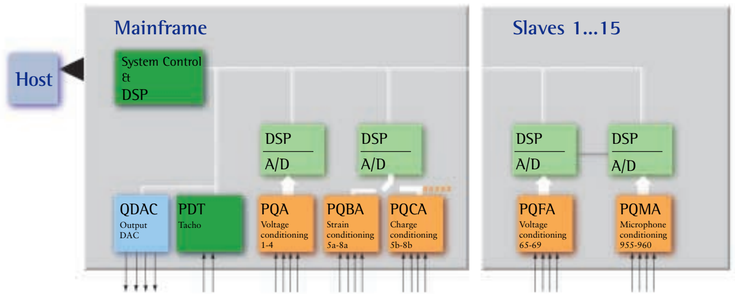
SCADAS III has everything you need for multichannel dynamic data acquisition. This modular solution can expand from an inexpensive base with only four channels - to a system with several hundreds of channels. It provides very sophisticated signal conditioning that let's you mix 'n match inputs from a wide range of transducers – and has a distributed architecture so slave units can be over 50m away without degrading measurement performance. It has state-of-the-art sampling providing 96dB dynamic range. It has multiple DSP power embedded on each input card to perform digital filtering and resampling, overall rms level, and real-time octave analysis. It even uses a whisper quiet cooling system to allow you to perform sensitive acoustic tests.

But best of all, it's totally integrated into the LMS CADA-X or Test.Lab™ testing and analysis system. Existing SCADAS II users will find an all new, completely digital system – with finer resolution, better data quality, and fully computerized calibration. Newcomers to the system will appreciate the system flexibility and its competitive pricing. All will like this single vendor solution.

Whatever your application: acoustic assessment, MIMO structural tests, rotating machinery analysis, vibration control and time waveform simulation... or general purpose noise and vibration testing, the SCADAS III delivers where it most counts – outstanding price / performance.



LMS SCADAS III
As versatile as you want, as powerful as you need



The uniquely flexible SCADAS architecture: from a budget 4 channel system to a 960 channel system with 240 parallel DSP processors... Output from up to eight signal conditioning modules can be switched to a single digitizer/signal processing card: a cost effective solution for those who use a different mix of transducers for every test.

Architecture

SCADAS III has a very flexible architecture that let's you configure the system to your precise needs – add more channels, swap signal conditioning modules, boost the signal processing power as you wish. You have more control over the system price/performance than ever before.

The mainframe accepts up to 16 modules, so you can configure a system with up to 64 parallel input channels - or any combination of input/output cards, tacho inputs, and a variety of four channel signal conditioning modules. Signal conditioning modules are independent from the digitizer cards; you can even stack two or more signal conditioners and switch the inputs under full software control to a single digitizer card. This affords a unique flexibility and cost effectiveness for those who use a mix of transducer types.

With master/slave configurations, a SCADAS III system can be expanded to hundreds of channels. The master frame can optionally be connected to the host computer by a fiber optic link, and each slave frame can be over 50m away from the master. This distributed approach means that you can minimize costly transducer cabling - and obtain much higher quality measurements.

Digitizing and DSP

The outputs from the various signal conditioning modules are routed to the digitizer cards in a very flexible and computer controllable way.
Digitization uses delta-sigma techniques which combine an ultra-low noise floor with a fully linear 16-bit performance at sampling rates up to 200kHz per channel.
A high-performance DSP on each four-channel module increases the distributed power for real-time operations on a large number of channels.

Signal conditioning

SCADAS III can accommodate signals from any transducer type. Signal conditioning modules include voltage amplifiers with ICP supply, charge amplifiers, microphone amplifiers with programmable high-pass filtering, and bridge amplifiers. The integrated signal conditioning and direct connection of each transducer to the inputs eliminates interconnection problems associated with multiple units or breakout boxes - hum, noise, and ground loops. And a mess of cabling to sort out. The entire measurement chain is continuously monitored during testing for open or short circuits. Overload checks are carried out on several places in the signal paths, including full bandwidth checking upfront of the anti-alias filters. Finally, calibration is on a module by module basis, and is entirely digital process. This ensures high quality data over an extended period, or when cards are swapped over.

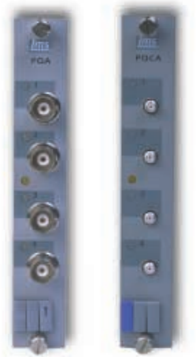
Programmable Quad Amplifier (PQA) and Programmable Quad Floating Amplifier (PQFA)
The PQA is the basic four channel conditioning module. Each channel has an individually programmable input range from ±62.5mV to ±10V, with AC/DC/ICP coupling, and an analog A-weighting filter. The PQA has grounded BNC inputs, the PQFA floating.

Smart transducers (TEDS) can be connected directly to the PQFA module. It will help you to reduce the set-up time drastically and even more important, you can avoid cabling errors which possibly would even force you to redo the measurement.

Programmable Quad Microphone Amplifier (PQMA)
The PQMA is ideal for vibro-acoustic measurements. You can directly connect four conventional, pre-polarized or ICP microphones, as well as force transducers, or voltage inputs. The analog high-pass filter optimizes the use of the ADC's dynamic range.

Programmable Quad Bridge Amplifier (PQBA)
The PQBA supports four channels of strain transducers - and those based on the same principle, such as piezoresistive or variable capacitor sensors. You can use full, half, and quarter bridge configurations, with bridge completion resistors switched under full software control.
Automatic bridge nulling uses current injection techniques.

Programmable Quad Charge Amplifier (PQCA)
The PQCA lets you connect four conventional piezoelectric accelerometers to the system using microdot connectors. It covers full-scale ranges from ± 25pC to ± 51,200pC with an exceptionally high dynamic range for the most demanding structural measurements.



Other modules

Quad Digital to Analog Converter (QDAC)
Output signals with ultra-low distortion and noise are ensured by the use of 24-bit digital to analog bit-stream converters, analog and digital reconstruction filters, and up-sampling digital filters with noise shaping. The four channel QDAC module includes firmware to support sine, random, burst sine or random, chirp and arbitrary signal generation.

This output module is also available in a two channel variant (DDAC)

Dual channel output for VIBCO and durability applications (VDAC)
The VDAC is a versatile dual channel output module for applications such as vibration control testing and time waveform replication, but also for multiple input multiple output modal testing. It can be used as an advanced signal generator or to replay signals that are generated on the host computer. To make sure we get a true replay of the original signals, ultra-low distortion digital interpolation filters are used. Dedicated hardware circuits guarantee smooth shutdown of the output signals even in case of power failure to protect the structure under test.

Programmable Dual Tacho (PDT)
The tacho module allows order tracking as well as spectral/octave acquisitions against rpm. TTL signals up to 15kHz and 1024 pulses per rev are supported, while auto-ranging inputs and programmable signal conditioning ensure that even 'industrial quality' analog tacho signals with noise and changing amplitudes give stable readings.