

... yet capable of handling all testing situations

Hardware platform

- High performance LMS SCADAS III front-end
- Scalable DSP power for practically unlimited static and dynamic channel counts
- Built-in signal conditioning: microphone, charge, bridge, ICP®...
- Visual channel mapping/transducer integrity checks
- 96dB A/D, 90kHz bandwidth
- Multiple tacho tracking
- On-board calibration for plug & play module swapping

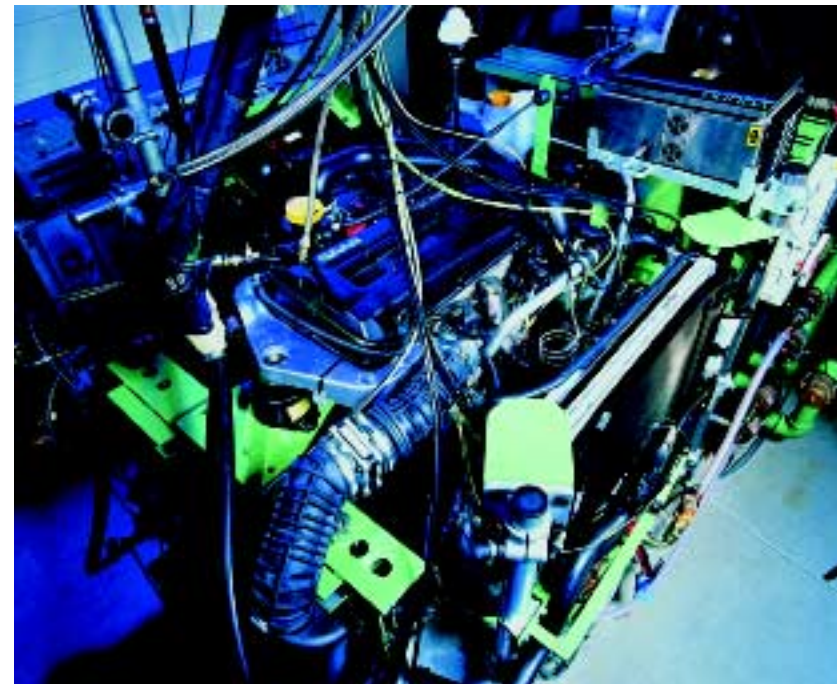
Software platform

- Based upon native Windows NT, enhanced by specific LMS architecture for dedicated functionality
- Takes advantage of multi-processor PCs for maximum performance
- Ergonomic design based on industrial research – no cascading menus
- Workbook concept with embedded workflow
- All data held in one file, with hierarchy viewed by browser
- Tight integration with Windows Office and LMS Reporting Seat for easy documentation
- Seamless integration with LMS CADA-X and LMS CADA-PC for extended analysis

Operational Concept

The way of interacting with LMS Test.Lab is very different to the traditional open-ended menu-driven approach. In effect each system is not a general purpose tool, but is set-up by the test-lab manager to become a precision process-centric solution that captures user workflow and is tailored to a given task or application. The key is that no programming is required. Procedures (engine testing etc.) are defined in 'templates' by the project manager which clearly describe what to do next. These can be more than a list of tasks to do, they can use embedded graphics, pictures, video, sounds,...that really help anyone understand and accomplish their tasks. Users are guided through an enforced procedure, each step in the task process described in their own language and terminology.

Within a day of starting, even a complete novice will be able to run an advanced test and publish a report.

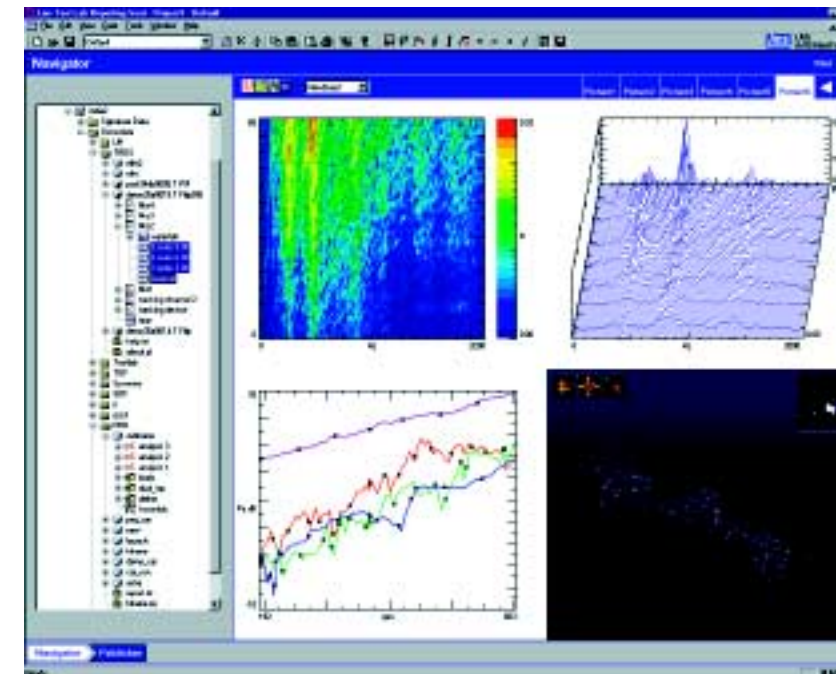


Data Reporting & Collaboration

Naturally all data can be transferred to Windows Office for a complete report at the local testing station.

In order to free up the testing station for more productive activities, the LMS Tec.Manager™ Reporting Seat will enable anyone in the organization – management, engineers, and other technicians – to access the data over the network and to effectively visualize, analyze, report, and share their work with others. Active display embedding is supported. Several users in entirely different locations can simultaneously view the same displays and discuss and mark-up the data as if all were in the same office – zooming into details, changing view formats, overlaying traces, changing weighting factors...

Finally, Test.Lab data are seamlessly compatible with LMS CADA-X for more advanced analyses that are probably better handled by an engineer.



Data are compatible with all other LMS products for easy comparison and reporting.

LMS Test.Lab™ Signature Testing Introducing Test Laboratory Automation



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LMS  Test.Lab™

LMS INTERNATIONAL
Empowering Engineering Innovation

LMS Test.Lab™ Signature Testing System

Designed from the outset for technician convenience ...

Like many others, you're probably faced by a dramatic increase in testing workload – and less engineering resources to handle it. Need to collect masses of engine run-up data quickly and accurately – but concerned about your personnel operating complex test equipment and software? How can you ensure that the correct procedures are followed – where to place transducers, how to use traceable calibration values, which test set-up should be used? You still need a powerful measurement system that can track, acquire and analyze data within an industrial environment – where tacho signals are not always perfect; where technicians need the interactivity to respond to events as they occur; and where validated results are needed by others before breaking down the set-up. But you don't need a system that's too hard for a technician to use!



LMS Test.Lab comprises powerful data acquisition hardware, years of LMS experience in signature testing, and software that was specially designed for use by technicians – an embedded workflow will guide anyone through a pre-defined test without any fuss or errors. There's no programming required, and even complete novices will be able to run the most advanced tests and publish their reports within a day! Contact us today to see it in action!

Features

- High performance multichannel tracked acquisition against speed and/or load/temp/pressure...
- Embedded workflow with videos, graphics, and pictures helps technicians understand the process
- Wide range of on-line indicators and processing functions
- Tight integration with Windows Office and other LMS products
- Tightly integrated hardware and software from single supplier – all to ISO9001 quality standard

Benefits

- Frees engineers from tests that are complex – but otherwise 'routine'
- More productive and more reliable tests – even for beginners
- Automation wherever possible to minimize decisions
- Easier reporting and data exchange helps build knowledge database
- Collaborative engineering: data can be accessed over the network and ultimately over the web by engineers and project managers

System Set-up

It's all about productivity and test integrity...

General

Just click on a user-defined icon in the Windows Desktop to launch Test.Lab and automatically load a specific test template (i.e. engine 5 WOT run-up) which can also be specific to an operator - instructions to follow, color schemes, trace styles, font size and so on...

The operator then follows the workflow defined by the supervisor: overall guidelines; channel set-up, calibration, tracking and acquisition set-up, on-line processing, measure and post-processing. Because all the information is automatically loaded, only a minimum of intervention is required.

Channel data

- Check or upload transducer calibrations, point-ids etc. from any ODBC database
- automatic detection of which channel(s) is being calibrated
- automatic selection of channels to be calibrated by given calibrator type (i.e. mic or accel)
- channel mapping to avoid re-cabling the set-up
- Configurable layout panel
- Channel grouping, categorizes channels in terms of vibration, acoustics, static and others which will be processed in the same manner on-line.

Acquisition & Tracking

- Interactive cursor-driven tacho level setting
- Two tachos for gearbox and turbo analyses
- Derived tacho, i.e from rpm to speed conversion
- Overview multiple channels, pan, zoom and overview into interesting details
- Immediate interactivity - change bandwidth and you see the results, enable a channel and the LED on the front-end turns green - and if there is a cabling error it will go red.



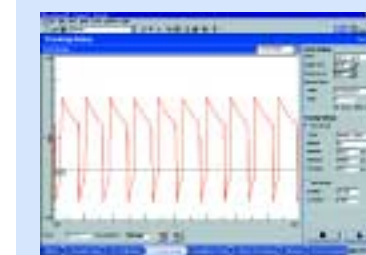
The operator can see what to do at a glance.



Transducer values are easily entered – or just load them from a database.



Automatically detect which transducer(s) are connected.



Tacho conditioning is very interactive.

Signature Acquisition and Processing

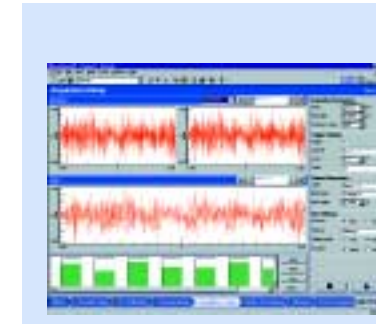
... and being a process-centric approach

Real-time processing

A wide choice of on-line display options and layouts means that the operator can see anything that is important - when it is wanted. These include the usual range of spectra, colormaps and rpm-related traces - and also reference curves, derived channels, on-line indicators...

Processing priority is given to those results that are required 'on-line', which means faster display updating when it most matters. Data buffering means that, no matter how quick the run-up, data will be acquired and processed at the specified rpm interval.

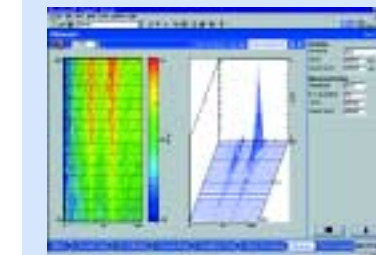
- Spectral acquisition
- 1/n octaves (inc. ANSI)
- Order acquisition
- Narrow or broadband overall level
- Reference curves
- Int/Dif, weighting, scaling...
- Derived Channels, e.g. summation of 8 microphones signals to form averaged overall SPL



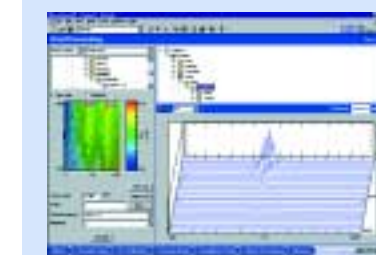
Interactively set-up the acquisition parameters, the front-end responds immediately.



Quickly define any on-line processing, such as OA-level, order and octave cuts, ...



On-line displays can be very simple – or show as much as you want.



Post-processing into waterfalls, colormaps, spectra, cuts ...

Post-processing

Now you're ready to quickly manipulate, process, and re-format the readings in any way you like. You can generate a wide range of graphs: from rpm-time diagrams, through interactive cursor sections, through summation diagrams in the frequency and/or order domains. Toggle between linear, weighted and user defined functions and formats. Drag and drop data into waterfalls, snap between spectral, octave, and order ratio formats; flip over the frequency/speed axes; toggle the color map through a stunning range of user-definable presentation styles...

- Complete range of functions - cuts/ sections etc.
- Processing functions
- Averaging of runs
- Maximum order contribution
- Data sensitive windows
- Real-time cursor sections

Application extensions...

Signature Testing forms the first wave of Test.Lab products, additional modules with a specific application focus are scheduled, contact us for more details...

- Cyclic domain acquisition: the tool to investigate duty cycle phenomena
- Order tracking
- Real-time Octave Analysis
- CAN-bus integration: bi-directional interface to the engine management system
- Smart Transducer Support (TEDS)
- Operational Deflection Shape Analysis