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BEYOND MEASURE

PULSE
PLATFORM VERSION 21

PULSE™ 21 has been released and is ready for download.

This release includes a comprehensive range of new hardware and software, plus updates and enhancements to both PULSE Reflex™ and PULSE LabShop software.

To download the software, go to *https://license.bksv.com*.

As an active M1 customer, you can immediately access any new feature or application related to your license. In addition, you are entitled to a number of other benefits, including participation in the value-adding **Like-for-Like programme**.

The PULSE 21 release includes major performance improvements, especially for large channel counts, during both real-time measurements and post-processing. The release's **major highlights** include:

- **PULSE LabShop:**
  - *New features in PULSE LabShop such as the now standard signal player, and measurement controls and slice monitor for touchscreens*
  - *Strengthening of the sound power suite with the new sound power determination of fans software and ISO 3747 support*
  - *Enhanced Refined Beamforming with the CLEAN-SC algorithm to remove dominant sources from source plots*
  - *Encoding upgrade in PULSE Data Manager that allows local language back-up and restoration of databases*
  - *Targeted enhancements and fixes in PULSE LabShop applications and Time Data Recorder*
- **PULSE Reflex:**
  - *Significant improvements in the intrinsic speed and processing ability of the platform, providing a more efficient workflow*
  - *Expansion of PULSE Reflex Measurements portfolio to include stepped sine structural measurements, plus new powerful tools such as live channel monitors and voice annotation during hammer measurements*
  - *Support for hands-free telephony and eCall testing with new testing suites in PULSE Reflex Telephone Test*
  - *Improved troubleshooting in PULSE Reflex Acoustic Camera with the addition of the spectrogram*
  - *Greater data management flexibility using the new My Data in PULSE Reflex Core*
  - *Continuing efforts to grow and mature the PULSE Reflex software*
- **Hardware:** *A new dedicated LAN-XI front panel for the testing of headphones, loudspeakers and receivers*

Like-for-Like Programme
PULSE LabShop users have free access to equivalent features within PULSE Reflex. We call this "Like-for-Like" meaning, wherever possible, the corresponding PULSE Reflex functionality is included with your PULSE LabShop software.

Further Information
To find out more about the latest additions to the PULSE platform, go to *www.bksv.com/pulse*. Alternatively, you can contact your Brüel & Kjær sales representative for product and solutions information as well as for special hardware, software and maintenance offers.

New Features in PULSE LabShop and Time Data Recorder

Measurement Control and Slice Monitor for Touchscreens

PULSE LabShop now includes touch screen use. Measurement Control, a new platform component, includes start, proceed, stop and store buttons as well as options for exporting to database and reporting. In addition, the Slice Monitor allows you to show slices vs time supporting time zoom – all at the touch of your screen (requires a touchscreen-enabled PC).

PULSE Signal Player: Now Standard with Types 7700, 7770 and 7771

The PULSE Signal Player, previously an optional accessory, allows you to listen to any signal during acquisition through your PC's sound card. You can select between channels during measurement or recording and mix the sound from many or all the channels. This component is now a standard feature in PULSE LabShop – simply load it via the software's Component Organizer.

Time Data Recording within PULSE LabShop

Type 7708 now supports metadata when recording in the .pti file format. The metadata definition is imported from PULSE Reflex and allows you to make time data recordings in PULSE LabShop and store the recording file along with associated metadata. The recordings can automatically be imported into PULSE Reflex Core for immediate analysis and reporting.

The new continuous triggering feature allows you to record several tracks one after the other once the recording has been started, based on a predefined trigger such as, an excessive noise event.

For more information, see the product data Software for PULSE LabShop and Time Data Recorder

Strengthened sound power suite

New PULSE Sound Power Determination of Fans Type 7886

Type 7886 provides for the sound power determination of fans and enables manufacturers to comply with national and international regulations for noise emission quantities. The software complies with the measurement requirements defined by ISO 3744, 3745 and 3746 and is configured to guide you through set-up, measurement and report generation.

For more information on this software, see the product data Sound Power Determination of Fans

Added Support of In Situ Sound Power Determination According to ISO 3747

The international standard ISO 3747 "Determination of sound power levels – engineering /survey methods for use in situ in a reverberation environment" is now implemented in Type 7799 and Type 7884.

Capability to remove dominant sources from source plots

PULSE Refined Beamforming BZ-5639

BZ-5639 has been enhanced with the inclusion of the CLEAN-SC algorithm, a very effective tool to remove dominant sources from source plots containing incoherent sources thereby, unmasking secondary sources.

With BZ-5639, FAS + CLEAN-SC is an extra algorithm in Spherical Beamforming Type 8606 providing better spatial resolution for incoherent sources with a spatial extent. Used in Planar Beamforming Type 8608, CLEAN-SC can be an alternative algorithm to NNLS with better spatial resolution for incoherent sources with a spatial extent.

For more information on this software, see the product data Refined Beamforming

Upgraded encoding in PULSE Data Manager

Local Language Support in PULSE Data Manager (PDM) Type 7767

PULSE databases have been updated with encoding of localization. This allows you to back up and restore a database with another local language without losing the original localization. This functionality is enabled by the addition of XML encoding to function data when writing them to a file farm. However, as function data from previous PULSE versions might still become unreadable in some scenario, an Encoding Upgrade feature was also added to PDM Tools. PDM will automatically scan the databases and detect if an encoding upgrade is necessary.

For more information on this software, see the product data PULSE Data Manager

Enhancements and fixes in PULSE LabShop applications and Time Data Recorder

As part of the continued focus on quality, major efforts have been made to improve stability and make improvements, such as:

- PULSE Acoustic Material Test includes two new calculations for bulk material properties in the absorption template, and the transmission loss template now supports multiple sample results
- Improved multi-threading support in NVH Simulator with up to 12 cores supported, meaning more than twice the number of order objects can now be handled in free-driving
- Support for R51.3 including the ASEP procedure and improved driver's aid to help the driver find the right entry speed and RPM in Vehicle Pass-by
- A new comparison function between two different cars in Indoor Pass-by that can compare the contribution of different parts, for example the muffler and tyre
- Source Path Contribution now has an Operating Condition wizard for quick entering of a set of operating conditions, and has improved copy/paste and data selection
- Optimization of measurement bandwidth for large PULSE systems
- Continued focus on stability, improvements and bug fixes
- Report generation using file types .xlsm and .xltm

For more information on this software platform, see the system data PULSE Software

A more efficient workflow in PULSE Reflex

Using a 132- and 120-channel system as benchmarks and the PULSE 20 version as the baseline, the development team dedicated its resources to improve performance in both real-time measurements and post-processing. The result was a time reduction in the overall measurement workflow from around three minutes to just under one minute, and transfer time of the over 120 recordings to PULSE Reflex Core's Process Chain by a factor of 7. The resulting 17,280 data sets were then exported to Microsoft® Excel®, where tests showed a time reduction by a factor of >50!

For examples of specific new and improved features and capabilities in the PULSE Reflex platform that support this more efficient workflow, see the enhancements and fixes list below

Expanded PULSE Reflex Measurements portfolio

New PULSE Reflex Structural Measurements – Stepped Sine Type 8729-C
The portfolio has expanded with the new Stepped Sine application for acquiring leakage-free high-quality FRFs or performing linearity checks. Multiple shakers can be used with manual or automatic amplitude and/or phase control of selected force or response signals. Automatic control is achieved with a software loop. The application also contains a number of unique features like definition of optimal sweep series to reduce the number of sweeps required and alarm and abort levels.

Added Features in PULSE Reflex Measurements
- The new overall level and FFT monitor displays allows you to see live data immediately upon activating channels in the HW Setup Table. You can then make decisions about your test set-up before even beginning your measurement
- Geometry legends for displaying information about the shape(s) being animated, such as frequency, damping and mode complexity, are now available. This is particularly useful when creating .avi video files to document the results
- In Type 8729-B, 'periodic chirp' has been added to the generator waveforms for use with linear system identification. Audio feedback has also been added, allowing you to run a test without seeing the PC screen and still be confident in the results' quality

For more information on this software, see the product data PULSE Reflex Measurements

Popular additions to the PULSE Reflex Telephone Test application

The expansion of the PULSE Reflex-based telephone test application continues with the accommodation of hands-free and eCall testing. With the new software packages, the legendary Type 6712 hardware platform now supports the following new test procedures:

- 3GPP TS.26.132 for testing of 3G/4G hands-free (Type 8772-X04)
- YDT-1538 (Chinese standard) for testing of 3G/4G hands-free (Type 8772-X08)
- eCall according to ITU-T Recommendation P.1140 (Type 8772-X11)

For more information about these software options, see the individual product data for Type 8772-X04, Type 8772-X08 and Type 8772-X11

Improved troubleshooting in PULSE Reflex Acoustic Camera

The troubleshooting capability of the Acoustic Camera has been greatly improved by a number of new features including: spectrogram in streaming and in playback mode enabling short noise events to be clearly seen; listening to a recording during playback; and easy transfer of measured data to the Array Acoustics Post-processing Suite for a wealth of post-processing capabilities.

For more information about this software, see the product data PULSE Reflex Acoustic Camera

My Data in PULSE Reflex Core

In Reflex Core, the Project Browser has been enhanced by the addition of the My Data folder, which gives you more flexibility on how you manage data. The My Data folder is completely under your control. Here you can store search results from the database or manage data from your project according to your own desires.

For more information on this software, see the product data PULSE Reflex Base and Core

Enhancements and fixes in basic PULSE Reflex applications

In PULSE 21, there are a number of enhancements intended to make your test and analysis faster and easier while we continue efforts to grow and mature the PULSE Reflex platform. These include:
- New fast time displays enable hundreds of functions to be overlaid, or cycled through, very quickly
- Import support for the time data file format, ASAM Transport Format in XML (.atfx), which is recommended with ASAM ODS systems
- File import settings to optionally convert pressure to sound pressure, and strain to microstrain
- Significant performance improvements and increased flexibility when importing geometries and shapes in .csv files
- Support of a user-defined unit system
- New order cursor for order analysis, which adds a series of order cursors into the display
- Maximum level settings for wave file export including rms scaling for compatibility with PULSE LabShop. Previously only peak scaling was available
- Significantly reduced time to store measured or processed results to the Project Browser in PULSE Reflex Measurements
- Improved measurement controls in PULSE Reflex Measurements to give more flexibility in validating
- Quicker access to results and easier progression through set-up and measurement tasks in PULSE Reflex Measurements due to reduced memory use during matrix generation
- Expanded list of supported transducers in the Transducer Manager, including velocity and displacement probes, couplers and head and torso simulators (HATS)
- Improvements in drag-and-drop speed when processing large numbers of recordings in a single batch process within PULSE Reflex Core's Process Chain
- Recording files with multiple sample rates can now be handled in a single analysis using resampling options in the Process Chain's input area properties
- New overlay option for overall level vs time result called Relative Time (zero-based) that gives greater flexibility to compare results from different time ranges within a single recording

For more information on this software, see the product data PULSE Reflex Base and Core and PULSE Reflex Measurements

New LAN-XI data acquisition hardware

LAN-XI Front Panel UA-2118-022
UA-2118-022 is a dedicated analogue interface for headphone testing allowing simultaneous testing of left and right headphones. A three-position switch on the front panel switches the output of Generator 1 between left earphone, both earphones and right earphone.

For more information on this hardware module, see the product data LAN-XI Front Panels

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