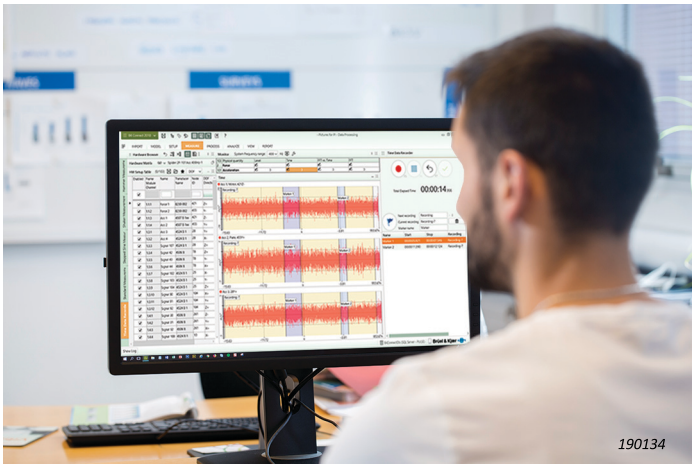
BRÜEL & KJÆR® Data Analysis Software

BK Connect Time Data Recorder

BK Connect® is a fully integrated solution for multi-channel data acquisition (using our industry-leading LAN-XI hardware), data processing, data management and reporting. The innovative user interface is easily customized so you can adapt it to the needs of different users within your organization enabling expert users and operator technicians to work together with maximum efficiency and high productivity.

The core applications of BK Connect are designed for general-purpose sound and vibration engineering. Together they provide a comprehensive set of tools for real-time measurements and data processing with the flexibility to deal with a wide range of engineering scenarios – from repetitive, standardized testing to complex troubleshooting investigations.



Uses and features

Uses

- Sound and vibration data acquisition, analysis and reporting
- Time data recording
- Visualization and editing of dynamic channels, CAN bus and auxiliary channels, as well as audio playback of time data after recording and in preparation for analysis
- Display of frequency, rpm and order content of time signals during audio playback
- Off-line analysis (post-processing) of recorded time data along with CAN bus and auxiliary data
- Batch processing of multiple sets of time recordings
- Simple and efficient reporting of results with user-definable layouts and user-selectable metadata

Features

- Stand-alone time data recording, playback and review
- With the addition of a BK Data Processing licence, you have a single integrated interface for acquisition, recording, batch post-processing, data management and reporting
- User interface and data organization optimized to fit your workflows, allowing multiple tests, setups and applications inside a single project
- Graphical setup of transducers used with the data acquisition hardware (using real or virtual front end)
- Signal, speed and auxiliary signal triggers to start and stop recordings
- Time data review that allows:
  - Listening to recordings in the project
  - Trimming of original recordings
  - Editing markers added during a recording
- Easy to learn and use, reducing training and test time

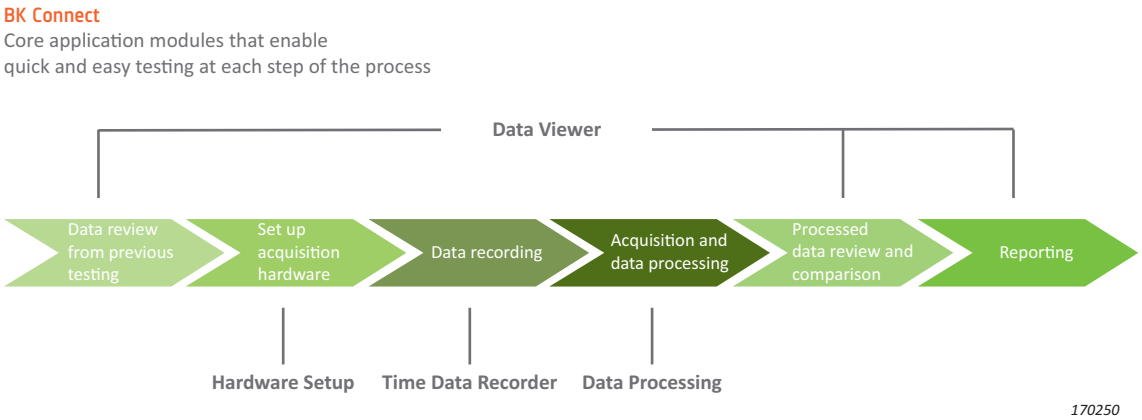
The BK Connect core suite

The core applications of BK Connect are:

- **BK Connect Data Viewer** for data management, viewing and reporting
- **BK Connect Hardware Setup** for setting up transducers and front-end hardware
- **BK Connect Time Data Recorder** for dedicated time data recording and review
- **BK Connect Data Processing** for real-time measurements and time or function data processing

Each of these applications is designed as a self-contained solution for a typical task or set of tasks within test and analysis. Select the module or modules that will help you perform the task, or combine applications to increase functionality and create super-efficient workflows for quick and easy completion of multiple steps in a sound and vibration test process.

Fig. 1
BK Connect core applications

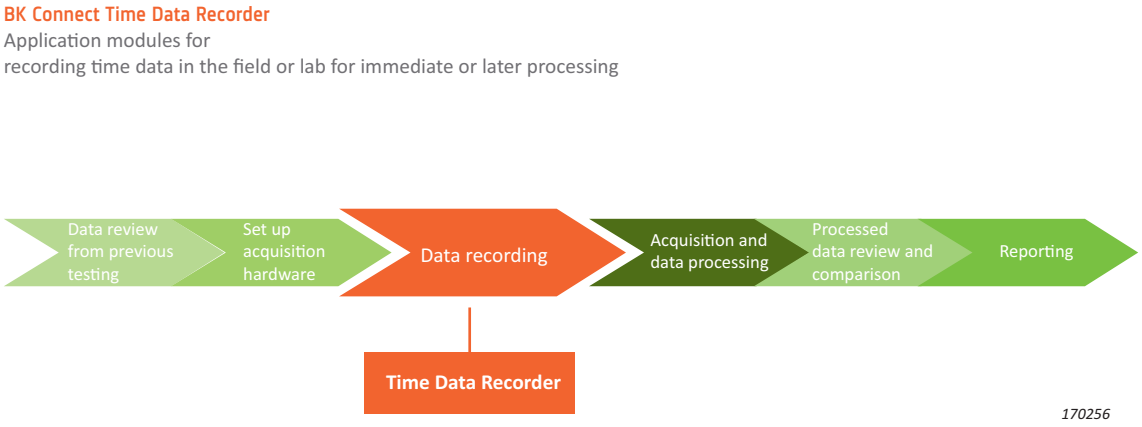


Licencing that fits your needs

BK Connect Data Viewer Type 8400, a free licence, is the prerequisite for all applications except BK Connect Hardware Setup.

The four core applications can all be used stand-alone or incorporated into the main application, BK Connect Data Processing. On its own, Data Processing is purely for time or frequency data post-processing, however when the Hardware Setup and Time Data Recorder licences are present, you can simultaneously record and post-process test data to quickly produce your final results and/or reports.

BK Connect Time Data Recorder



BK Connect Time Data Recorder is designed for fast, efficient, flexible recording. Start and stop manually with a click of a button, or set up signal or speed triggers for automated recordings.

Time Data Recorder is closely linked with the real-time monitor displays ensuring that no event goes unnoticed whilst recording is in progress. Both Data Viewer Type 8400/8400-NT and Hardware Setup Type 8401 are required to use Time Data Recorder.

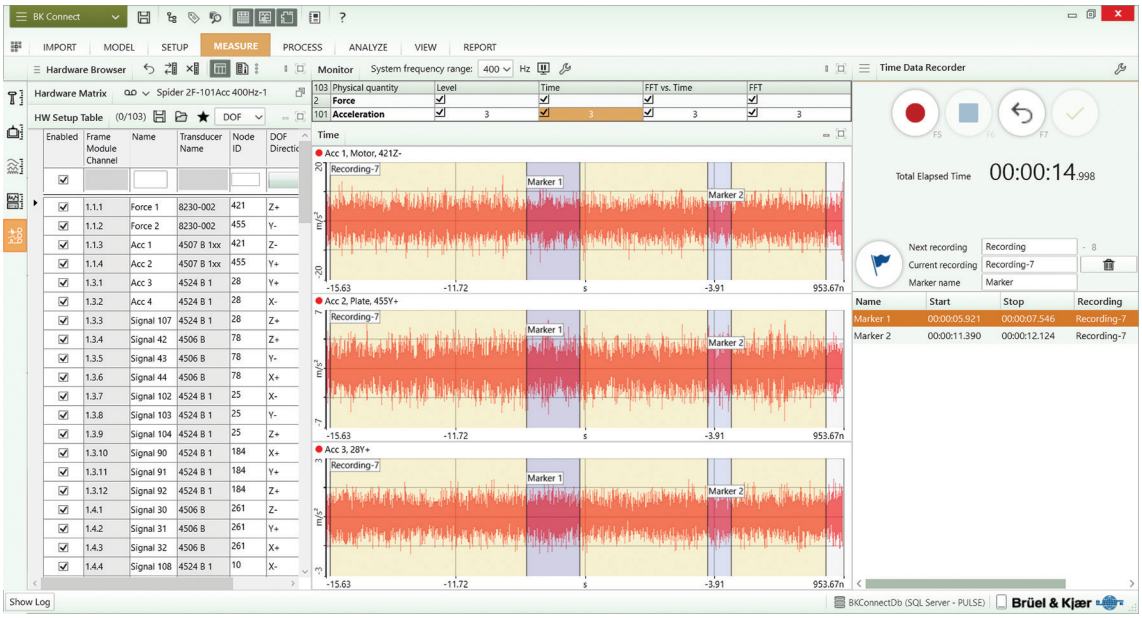
Time data recording

When used as a stand-alone application, Time Data Recorder provides fast and efficient recording with post-recording verification. When used inside the Data Processing application, it becomes part of a sophisticated recording, measurement and post-processing workflow.

Type 8402 provides a number of time data recording tools and features:

- **Flexible triggers** allowing different options for triggered start and stop of a recording – ideal for 'set up & leave' scenarios
- **Trigger delay** or pre-delay gives the flexibility to record unpredictable transient events
- **Two recording modes**:
  - Multiple mode enables a fixed number of sub-recordings to be made in a single recording process
  - Circular mode enables a fixed number of sub-recordings to be continuously updated so you can record for a fixed period of time and stop on a signal trigger event, for example recording what happens before an unpredictable event
- **Markers** allow you to indicate events during recording that can later be used as an aid to post-processing. These markers can be edited in the Time Review task
- **One-touch operation** via hot keys for use when normal operation is difficult, for example, in a moving vehicle
- A **documented API** for external applications, or smart device apps, to control key functions and obtain status information
- **Metadata definitions and event markers** are saved in the recording file for use during post-processing and reporting
- **Coupled with the Hardware Matrix and real-time monitors**, markers during a recording are displayed in real time in the monitors

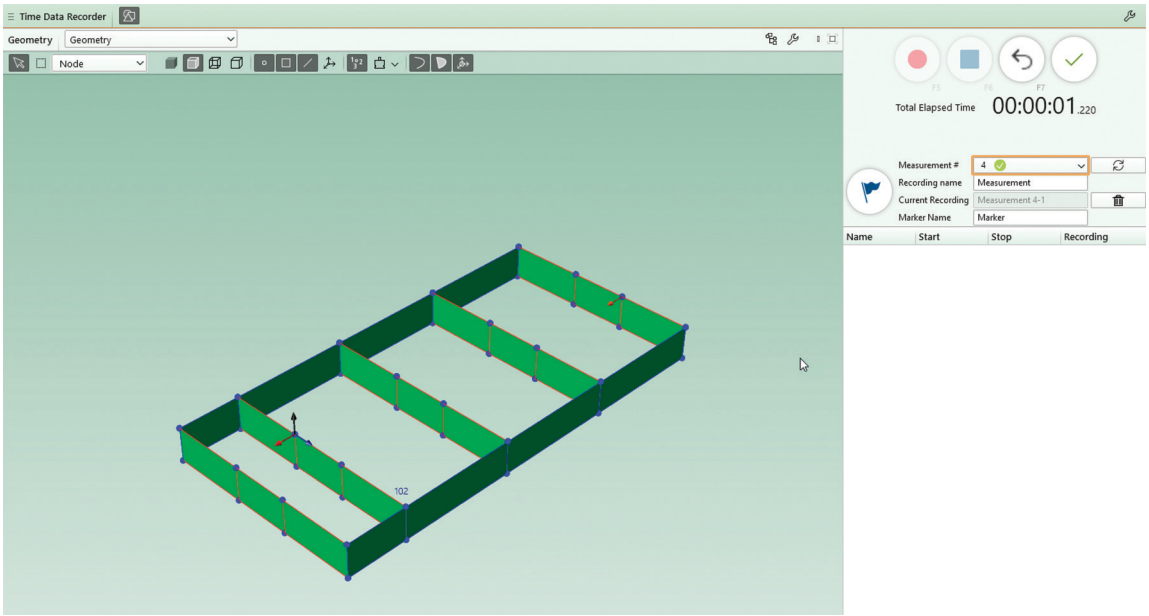
Fig. 2
The Time Data Recorder interface



Geometry-guided recording

If you also have BK Connect Geometry Type 8410 licence, you can predefine the measurement sequence using the DOF Setup task. The appropriate number of tracks will be added to the recording task and the geometry will be visible to help you rove the transducers to the correct location between recordings.

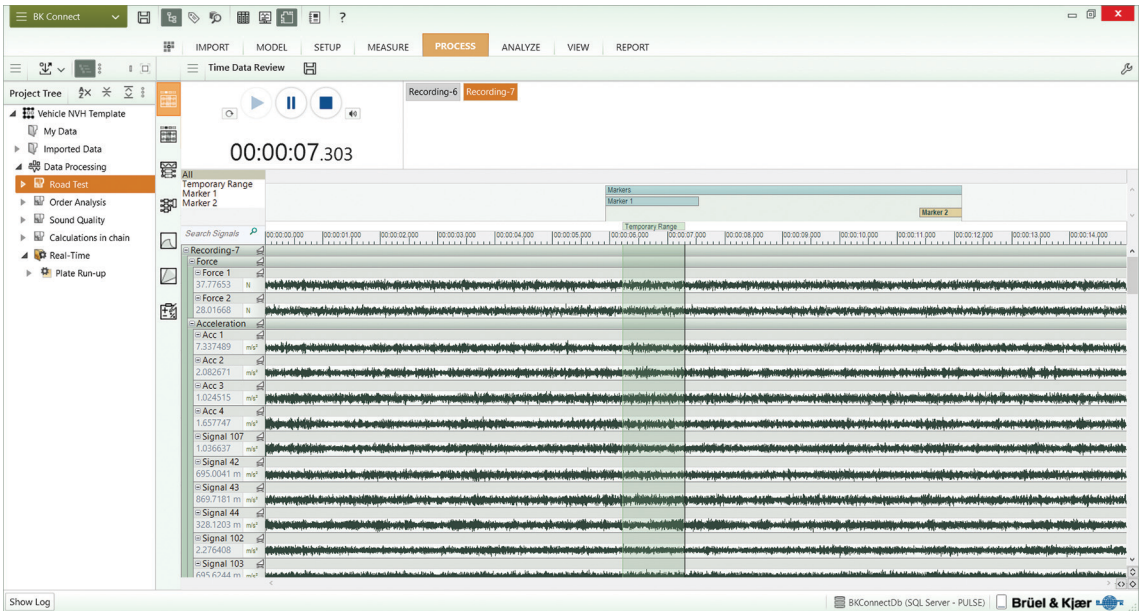
Fig. 3
The test geometry in the Time Data Recorder task



Time Data Review

With the Time Data Review analysis task you can check the quality of your recordings by playing them back, listening to individual channels, and trimming them to remove unwanted data. You can also edit the metadata or markers, if needed, so that the recordings are fully prepared and error free, for later post-processing.

Fig. 4
The Time Data Review task



Specifications – BK Connect Time Data Recorder

This Windows®-based analysis software is delivered via download option or USB installation media. The licence is either: node-locked to a PC host ID or dongle; or floating, locked to a network server

System

PC SYSTEM REQUIREMENTS

- Windows® 10 Pro or Enterprise (x64) with either Current Branch (CB), Current Branch for Business (CBB), Semi-annual Channel (Targeted) or Semi-annual Channel servicing model
- Windows® 11 Pro or Enterprise (x64) with either Current Branch (CB), Current Branch for Business (CBB), Semi-annual Channel (Targeted) or Semi-annual Channel servicing model
- Microsoft® Office 2019 (x32 or x64) or Office 2021 (x32 or x64)
- Microsoft® SQL Server® 2019 (SQL Server 2019 Express included with software)
- To play back signals: Windows®-compatible sound card

RECOMMENDED PC SYSTEM

- Intel® Core™ i9, 3 GHz processor or better
- 32 GB RAM
- 1 TB Solid State Drive (SSD) with 100 GB free space, or better
- 1 Gbit Ethernet network*
- Microsoft® Windows® 10 Pro or Enterprise (x64) with CB
- Microsoft® Office 2021 (x32)
- Microsoft® SQL Server® 2019
- Screen resolution of 1920 × 1080 pixels (full HD)
- For time data review: PC optimized for CPU and hard disk intensive operations

FRONT-END SUPPORT

One or more LAN-XI data acquisition modules (stand-alone or in frame). Required for real-time measurements and recording

Software prerequisites

- BK Connect Data Viewer Type 8400 or 8400-NT (free viewer)
- BK Connect Hardware Setup Type 8401

Included licences

For PULSE LabShop software owners with a valid M1 agreement, the following licences are included:

- PULSE LabShop Time Type 7789
- PULSE LabShop Time Capture Type 7705
- PULSE LabShop Time Data Recorder Type 7708

* A dedicated data acquisition network (LAN or WAN) is recommended. A network that only handles data from the front end improves the stability of the data

Time data recording

BASEBAND FREQUENCY SPAN	50 Hz – 204.8 kHz in 2^n (1, 2, 4, 8, …) sequence
FREQUENCY SPAN	Max. 204.8 kHz per channel (hardware module dependent)
CHANNEL × BANDWIDTH	The maximum rate is dependent on the acquisition hardware and PC configuration but a total rate of 4 MHz (40 Mbyte/s) can be expected from a typical system and rates exceeding 15 MHz (150 Mbyte/s) are obtainable on specially configured PCs
RECORDING MODES	**Single:** Maximum recording length is defined by the size of the recording disk
	Multi and Circular: Maximum recording length is defined by the size of the recording disk: • Maximum number of sub-recordings is limited to 32767 • Maximum length of a sub-recording is 65.4 ks ~ 18 h • Maximum recording length is more than 1 year (Max. sub-recordings × Max. length of sub-recording)
TRIGGERING	Start and Stop of a recording can be controlled manually or using a trigger, via a time delay, a predefined signal level, or at a specified rpm
EVENT MARKERS	All markers in a single recording have the same name. The number automatically increments with each pair of markers added, so that the pair define the start and end points. Markers are used to define regions during post-processing
METADATA AND DEVICE UNDER TEST	Metadata values entered are saved with any subsequent recordings made during the current session (or until changed)
EXPORT FILE FORMATS	.bkc (BK Connect native format) Compressed files can be stored along with the full time history so rendering in the Time Editor and Time Review tasks can be done faster
GEOMETRY-GUIDED RECORDINGS	Requires BK Connect Geometry Type 8410 licence. Model task and DOF Setup sub-task become available enabling creation of DOF sequences. See www.bksv.com for more information on BK Connect Geometry

Time Data Review

PLAYBACK	Listen to recordings in current project
EDITING	Trimming of original recordings Editing markers added during a recording

Ordering information*

Type 8402-X	**BK Connect Time Data Recorder**
Type 8410-X	BK Connect Geometry (for geometry-guided recordings)

Other BK Connect software modules and packs

BASIC APPLICATION AND IMPORT OPTION MODULES

Type 8400-NT	BK Connect Data Viewer (free viewer)
Type 8400-X	BK Connect Data Viewer
Type 8400-A-X	BK Connect Data Viewer (advanced)
Type 8400-B-X	BK Connect Native File Importers
Type 8400-C-X	BK Connect External File Importers
Type 8400-D-X	BK Connect Nastran Interface
Type 8400-E-X	BK Connect Ansys Interface
Type 8400-F-X	BK Connect Abaqus Interface

DATA ACQUISITION APPLICATION MODULES

Type 8401-X	BK Connect Hardware Setup
Type 8401-A-X	BK Connect Hardware Setup (advanced)
Type 8401-VT-X	BK Connect Virtual Hardware Setup

DATA PROCESSING APPLICATION AND OPTION MODULES

Type 8403-X	BK Connect Data Processing
Type 8403-A-X	BK Connect Data Processing (advanced)
Type 8405-B-X	BK Connect Advanced Frequency Analysis Option
Type 8405-C-X	BK Connect CPB Option
Type 8405-E-X	BK Connect Order Analysis Option
Type 8405-F-X	BK Connect Order Tracking Option
Type 8405-G-X	BK Connect Sound Quality Metrics Option

DATA RECORDING PACKS

Type 8402-NS	BK Connect Time Data Recorder Pack – node-locked licence that includes Types 8400, 8401 and 8402
Type 8402-A-NS	BK Connect Time Data Recorder Pack (advanced) – node-locked licence that includes Types 8400, 8400-C, 8401, 8401-A and 8402

DATA PROCESSING PACKS

Type 8403-NS	BK Connect Data Processing Pack – node-locked licence that includes Types 8400, 8401 and 8403

DATA RECORDING AND PROCESSING PACKS

Type 8404-NS	BK Connect Data Processing and Time Data Recorder Pack – node-locked licence that includes Types 8400, 8401, 8402, 8403 and 8403-A
Type 8404-A-NS	BK Connect Data Processing and Time Data Recorder Pack (advanced) – node-locked licence that includes Types 8400, 8400-A, 8400-B, 8401, 8401-A, 8402, 8403 and 8403-A

Team data sharing

Type 8400-T-FY	BK Connect Team Server, Single User, Annual Floating Lease Licence and Support

Software Maintenance and Support Agreements†

M1-8400-X	Agreement for Type 8400
M1-8400-A-X	Agreement for Type 8400-A
M1-8400-B-X	Agreement for Type 8400-B
M1-8400-C-X	Agreement for Type 8400-C
M1-8400-D-X	Agreement for Type 8400-D
M1-8400-E-X	Agreement for Type 8400-E
M1-8400-F-X	Agreement for Type 8400-F
M1-8401-X	Agreement for Type 8401
M1-8401-A-X	Agreement for Type 8401-A
M1-8401-V-X	Agreement for Type 8401-V
M1-8402-X	Agreement for Type 8402
M1-8403-X	Agreement for Type 8403
M1-8403-A-X	Agreement for Type 8403-A
M1-8405-B-X	Agreement for Type 8405-B
M1-8405-C-X	Agreement for Type 8405-C
M1-8405-E-X	Agreement for Type 8405-E
M1-8405-F-X	Agreement for Type 8405-F
M1-8405-G-X	Agreement for Type 8405-G
M1-8410-X	Agreement for Type 8410
M1-8402-NS	Agreement for Type 8402-NS Pack
M1-8402-A-NS	Agreement for Type 8402-A-NS Pack
M1-8403-NS	Agreement for Type 8403-NS Pack
M1-8404-A-NS	Agreement for Type 8404-A-NS Pack
M1-8402-NS	Agreement for Type 8402-NS Pack

BP 2603 – 16 2022-07

* "X" indicates the licence model can either be N: Node-locked or F: Floating
† Agreement expiration date to be agreed at time of contract

Teknikerbyen 28 · DK-2830 Virum · Denmark
Telephone: +45 77 41 20 00 · Fax: +45 45 80 14 05
www.bksv.com · info@hbkworld.com
Local representatives and service organizations worldwide

To learn more about all HBK offerings, please visit hbkworld.com

HBK HOTTINGER BRÜEL & KJÆR