

PULSE™ Time Data Recorder Type 7708

including PULSE Data Recorder Type 7701

PULSE Time Data Recorder Type 7708 meets the needs of customers who wish to gather data in the field for later post-processing and analysis. Running on a standard laptop, Type 7708 is an ideal, stand-alone, multichannel data acquisition tool.

For those who wish to perform real-time analysis in PULSE LabShop, PULSE Data Recorder Type 7701 can be embedded into a PULSE project to archive time histories while simultaneously analysing the data.



Uses, Benefits and Features

Uses

- Recording time data to disk for later post-processing

Benefits

- Ideal data acquisition tool for PULSE Reflex™
- Simultaneous real-time analysis and recording when used with PULSE LabShop (Type 7701)
- Random access of recorded data – no tapes to spool
- Ranging not required when using Dyn-X acquisition modules
- Transducer conditioning is automatically configured when using transducers with TEDS

Features

- Easy hardware setup in spreadsheet style with save/load configuration from xml file
- Simple and intuitive controls
- Time history profiles for verification of recorded data
- Live monitoring of signals
- Metadata support for PULSE Reflex database
- Choice of manual or signal triggered recording
- Multiple recording modes
- Event markers
- Automatic indexing of files for efficient post-processing
- Export in a wide variety of formats
- Dynamic range up to 160 dB using Dyn-X input modules
- Optional data review and trim before save

Description

PULSE Time Data Recorder is an economical replacement for instrumentation tape recorders for portable or in-vehicle recording from one to hundreds of channels directly to hard disk. Whether in the field or in the office, the time files produced can be analysed in PULSE using either PULSE LabShop or the extensive post-processing facilities of PULSE Reflex.

With its intuitive user interface and advanced front-end connectivity, you can use PULSE Time Data Recorder with all PULSE front ends giving you the full advantage of automatic recognition of transducers with TEDS (Transducer Electronic Data Sheet), increased dynamic range with [Dyn-X technology](#) as well as the high flexibility and modularity LAN-XI front end modules (see [BP 2215](#)). For an overview of PULSE LabShop analyzers, see [BU 0229](#) and for PULSE Reflex post-processing applications, see [BP 2258](#).

Fig. 1
Left: PULSE Time Data Recorder Type 7708 used to make a data recorder project

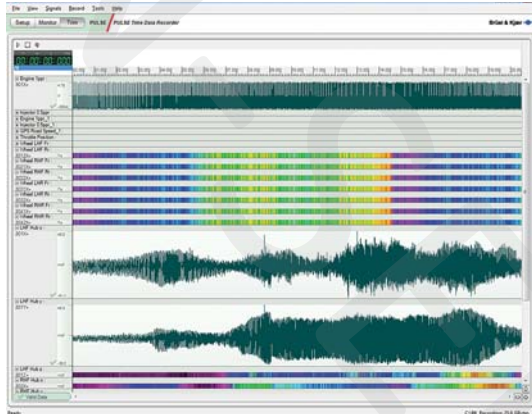


Right: The project can be post-processed in PULSE Reflex (Type 8702) and reports generated



The acquisition setup is simplified by using a spreadsheet interface where complete channel information can be copied and pasted between rows for multiple channels that share (nearly) identical setup. Values in cells can also be duplicated in adjacent cells by dragging across multiple cells.

Fig. 2
 Time edit screen in Type 7708



During setup and recording, all active channels are monitored with the input level meter and the level history, which helps identify channels with intermittent problems. For more detailed monitoring, you can select any channel for display as a time signal or as a real-time spectrum, while cable problems or overloads are automatically detected and indicated by the software. As an added diagnostic tool, you can also monitor the selected channel through the PC's audio output.

You can save recordings automatically or switch to the trim (time edit) screen immediately after recording (Fig. 2) and drag the mouse to select the range of the recording to save. You can then optimize the selected range by using the playback controls to listen to the range in single play or loop mode.

Modes of Recording in Type 7708

Fig. 3
 Transport controls of Type 7708



There are several different recording modes to suit different situations: Manual Recording mode, Multi Recording mode and Circular Buffer Recording mode.

Manual Recording – using Single Recording

The most common recording mode is manual start and stop using the transport controls (Fig. 3). During recording, you can mark events using the **Marker** button (see “Markers” below).

Multi Recording

A multi recording is a series of recordings initiated by clicking **Start** and stopped after the specified number of recordings has been reached or by clicking **Stop**. This kind of recording is ideal when you know the time frame of events to be recorded – for example, a run-up/run-down or a specified frequency sweep controlled by a generator.

Using delayed start in connection with multi recordings gives the possibility of recording for a specified length of time at a repeated time interval, for instance a 10 minute recording every hour. The end of the set of recordings is defined by the maximum number of recordings

Circular Buffer Recording Mode

In situations where the exact duration of a test is unpredictable, but the period leading up to the end of the test is the most interesting, there is a circular buffer mode with user-defined recording length. This is ideal in situations where a test item may fail, for example in a shaker test, and the greatest interest lies in the last few minutes before failure.

Note that although the buffer is circular and only contains a specified number of recordings, the recording number still increments. This means that when an event occurs, you can always calculate how much time has passed since the start of recording, and thereby, for example, the mean time between failures.

Triggered Recording

For automated recording, a trigger channel can be used to start recording when a predefined level has been reached, and similarly stop recording. The triggers have built-in, user-configurable intelligence to deal with less-than-ideal trigger signals which, for example, may fluctuate around the trigger point.

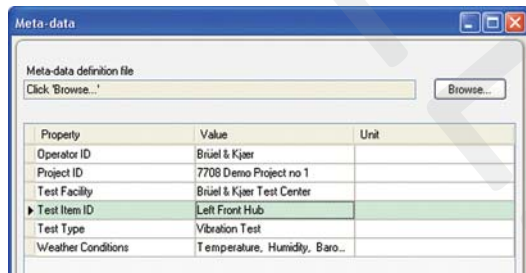
Markers and Metadata for PULSE Reflex™

Markers

PULSE Time Data Recorder Type 7708 supports multiple markers. You mark an event by clicking the Marker button at the event start and again at the end of the event. Markers can be named automatically in sequence, or you can enter a name to provide more information about the event.

All markers in a recording share the name and consecutive numbers are added automatically each time you mark the end of an event. The markers are stored with the recording when it is saved, and are automatically converted into separate named regions for post-processing when imported into PULSE Reflex (Fig. 4). This greatly simplifies the task of interpreting long recordings which may contain numerous different events.

Metadata



Type 7708 includes a Metadata dialog that allows you to enter metadata that is stored with each recording you make. Metadata helps you document the type of recording and its conditions. The metadata is automatically imported and supported in PULSE Reflex.

Fig. 4
Adding metadata in
Type 7708

Support of Multiple Recorders in PULSE LabShop (Type 7701)

PULSE LabShop supports single or multiple recorders:

Single Recorder Only	Single or Multiple Recorders
<ul style="list-style-type: none">Recording in DAT/REC file formatRecording bandwidth down to 1.6 kHzRecording all active signals in the system + all auxiliary channels	<ul style="list-style-type: none">Recording in PTI file formatRecording bandwidth with individual decimationBandwidth individually selectable for each recorderRecording a selected subset of signals + all auxiliary channels

Setting up the system for recording in the PTI output format allows you to make use of multiple bandwidth recording. This allows you to insert more than one recorder in your system. Each recorder setup with PTI output format will only record a selected subset of signals (one or more Signal Groups). This allows you to control the number of channels and reduce the Frequency Span and hence reduce the file size. If your PULSE system includes auxiliary channels, then all auxiliary channels are automatically included in each recording.

REQUIREMENTS

Type 7701 requires Type 7700, 7770, or 7771

BASEBAND FREQUENCY SPAN

Type 7708: 50 Hz – 204.8 kHz in 2ⁿ (1, 2, 4, 8, ...) sequence

Type 7701 in PULSE LabShop: 50 Hz – 204.8 kHz in 2ⁿ (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

DISPLAYS

Type 7708: Channel monitor (time or FFT), channel level meter, channel level history, elapsed time, RPM profile, tachometer

Type 7701 in PULSE LabShop: Channel monitor, channel level meter

RECORDING MODES (Type 7708)

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 67 years (Max. sub-recordings × Max. length of sub-recording)

TRIGGERING

Type 7708: 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

Type 7701 in PULSE LabShop: A recording session can be started manually or using a trigger (single or repetitive trigger). Each time a

trigger occurs, a new data track is recorded for a specified length of time

EVENT MARKERS (Type 7708)

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 with data imported into PULSE Reflex to define regions in its Time Editor

METADATA (Type 7708)

Available after initial export of metadata settings from PULSE Reflex Metadata values entered are saved with any subsequent recordings made during the current session (or until changed), and are available when the recordings are imported into PULSE Reflex

EXPORT FILE FORMATS (Type 7708)

I-deas Time History File (ATI), Universal File (UFF Binary or ASCII, PC or UNIX), TEAC (.hdr), MAT (.mat), WAVE (.wav, 16-, 24-, 32-bit), TDF (.tdf), HEAD (.hdf), CSV (.csv)

RESAMPLING ON EXPORT (Hz)

Type 7708: 128, 256, 512, 1024, 2048, 4096, 8192, 11025, 16384, 32000, 32768, 44100, 48000, 65536, 88200, 96000, 131072, 262144, 524288

Type 7701: 4096, 8192, 11025, 16384, 32000, 32768, 44100, 48000, 65536, 88200, 96000, 131072, 262144, 524288

FRONT-END CONFIGURATIONS SUPPORTED

	Type 7701	Type 7708
LAN-XI	✓	✓*
IDA ^e	✓	✓
VXI	✓	✓

* Type 7708 supports only two high-speed tach channels from Type 3056 modules (one tach channel and one tach [angle] reference channel)

Ordering Information

Type 7708-X* PULSE Time Data Recorder

Including:

- Type 7701: PULSE Data Recorder (embedded in PULSE LabShop)

Also available as a part of packages:

Type 7789-A-XS* PULSE Time

Including:

- Type 7708-X*: PULSE Time Data Recorder
- Type 7705-X*: PULSE Time Capture
- Type 7789-X*: PULSE Time

Type 7789-B-XS* PULSE Time

Including:

- Type 7708-X*: PULSE Time Data Recorder
- Type 7789-X*: PULSE Time
- BZ-7848-A: LAN-XI Notar

* "X" indicates the license model, either N: Node locked or F: Floating

ACCESSORIES REQUIRED*

One of:

- Type 3099-A-X PULSE LAN-XI and IDA^e/IDA Multiple Module Front-end Driver
- Type 3099-A-X1 PULSE LAN-XI Single Module and IDA^e/IDA Systems any size Front-end Driver
- Type 3099-A-X2 PULSE LAN-XI Dual Module and IDA^e/IDA Systems any size Front-end Driver
- Type 3099-D-X PULSE VXI Multiple Module Front-end Driver

With optional extension for Type 7701 in PULSE LabShop:

- Type 3099-E-X PULSE Generic Auxiliary Parameter Logging (GADI)

OPTIONAL ACCESSORIES*

- Type 7789-X PULSE Time

SERVICES*

- M1-7708-X Software Maintenance and Support Agreement

Brüel & Kjær and all other trademarks, service marks, trade names, logos and product names are the property of Brüel & Kjær or a third-party company.

