Established 1981

Advanced Test Equipment Rentals
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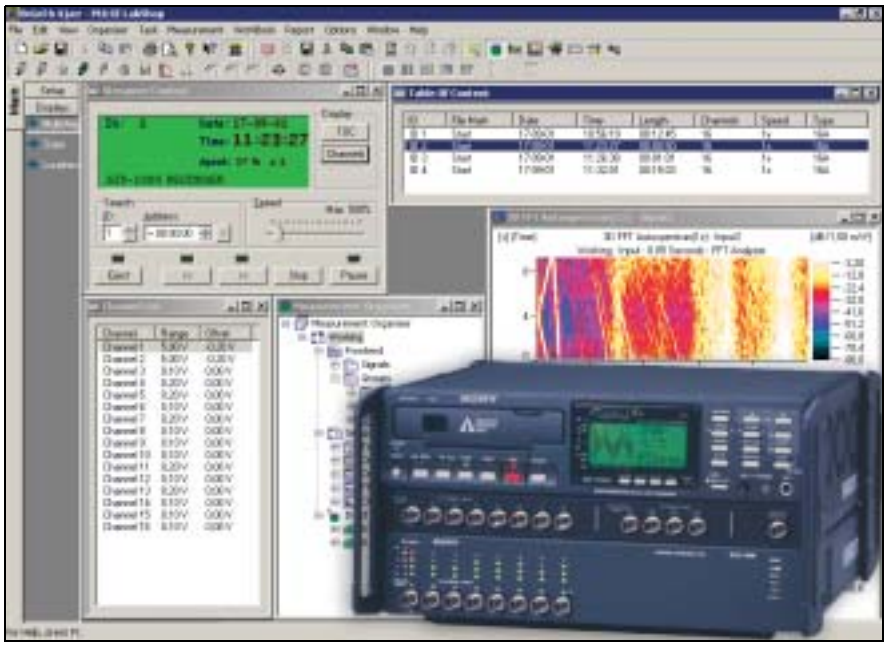
PULSE™ Multi-analyzer Systems Type 3560 can be used for analysing data recorded with the Sony® SIR-1000. The Sony® SIR-1000 Advanced Intelligent Tape (AIT) recorder is a state-of-the-art AIT recorder capable of recording on 4 to 128 channels simultaneously. Type 7774 interfaces with Sony® AIT Streamers types, reading data from the AIT tape and converting it for use directly in PULSE.

USES

- Analysis of data recorded with a Sony® SIR-1000
- Controls Sony® AIT Streamers types AIT90e–SB, AIT90i–SB, AIT130e–SB and AIT130i–SB



FEATURES

Sony® SIR-1000

- SIR-1000i: DC to 20 kHz on 16 to 32 channels, expandable to 128 channels to 5 kHz
- SIR-1000W: DC to 160 kHz on up to 4 channels, expandable to 16 channels to 40 kHz
- 2- to 32-hour recording and playback with variable tape speeds
- Over 80 dB dynamic range
- Compatible with AIT streamer via SCSI–2
- Easy data transfer to a PC
- 25 Gbyte tape capacity
- IRIG–B time code calibrates internal clock

PULSE Interface to SONY® SIR-1000

- Allows data from an AIT tape to be used directly in PULSE
- Utilises the AIT tape streamer as any other PULSE front-end
- Useable with Sony® AIT Streamer type AIT90e–SB and AIT130e–SB
- PULSE's transducer database allows easy handling of transducers
- Overloads reported to PULSE automatically
- Playback speed controlled from PC (max. playback speed dependent on PC's processing power)
- Playback analysis up to 5 times faster than real-time
- Supports all AIT tapes recorded with a SIR-1000
- Direct operation of AIT Streamer together with status notifications
- Analysis frequency range up to 102.4 kHz
- Automatic setting of frequency range and input channel signal level (information read from tape)
- Date and time of recording automatically read from tape

SONY® SIR-1000i and W

The Sony® SIR-1000i and W recorders are state-of-the-art AIT recorders for rapid acquisition of large amounts of precision data. The Sony® SIR-1000i can measure from DC to 20 kHz on 16 to 32 channels and, for high channel counts, is expandable to 128 channels to 5 kHz. The Sony® SIR-1000W is capable of measuring from DC to 160 kHz on up to 4 channels, and is expandable to 16 channels to 40 kHz.

The AIT technology used by the SIR-1000i and W gives a 25 Gbyte tape capacity and excellent reliability using its real-time, verify-rewrite feature. This reads data from the tape as it is being written, checking for and writing over any errors. Variable recording and playback speeds allow recording times of between 2 and 32 hours enabling the rapid review of long events or slow review of short events if required. The tape's Table of Contents with track location information is stored on embedded MIC (memory in cassette).

Once recorded, the data can be streamed to PULSE using PULSE Interface to Sony® SIR-1000 Type 7774. The result is seamless integration with PULSE LabShop, as for any other PUSLSE front-end.

PULSE Interface to Sony® SIR-1000 Type 7774

The common method of playing a tape back through the input terminals of an analyzer ties up the recorder and requires simultaneous operation of both the analyzer and the recorder. Also, by the time the data reaches the analyzer, it has been converted from analog to digital to analog to digital again.

Fig. 1
Sony® AIT Streamer

PULSE Interface to Sony® SIR-1000 Type 7774 frees up your data recorder by using a Sony® AIT Streamer type AIT90e–SB, AIT90i–SB, AIT130e–SB or AIT130i–SB to interface to PULSE via a standard SCSI interface. The data is stored digitally on the AIT tape and read directly into PULSE from the streamer. Another option is to use a Sony® Emulation Card STB10. This plugs into your SIR-1000 AIT recorder and allows it to be used as a streamer.

Type 7774 provides an interface for controlling the streamer, allowing control of playback and playback speed. PULSE treats the data as if it comes directly from a data acquisition front-end and analyses the data as it is being streamed from the tape streamer.

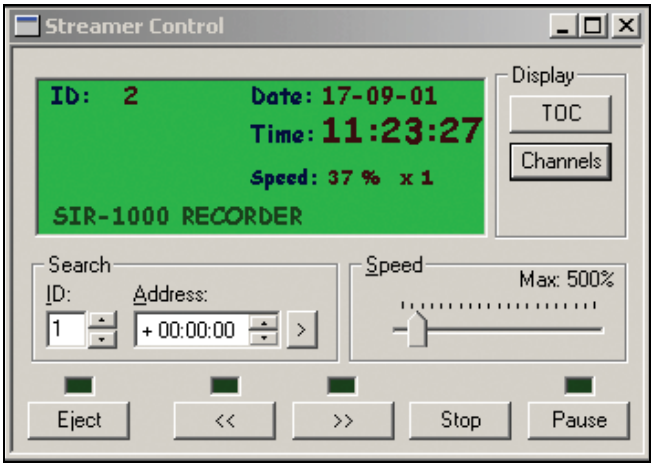


Fig. 2
AIT streamer control. Note that the time stamp is read from tape

You can enter information on the transducers used for measurement in PULSE's transducer database. You then attach the appropriate transducers in the Configuration Organiser before starting playback. In PULSE, all you then have to do is choose the track and number of channels that you want to analyse and start the analysis. The system then uses the gain settings on the tape combined with the transducer information to provide fully calibrated data. Analysis possibilities include Overall Level, 1/n-octave, FFT, Order Tracking, Stationary Loudness, all in parallel. See the Software for PULSE System Data (BU 0229) for details of available software.

Before, during and after analysis, the streamer control provides information of the current status of the streamer. Status messages include:

- **Stop:** Displayed when the tape is stopped. It occurs after a search, when a measurement template is deactivated
- **Play:** When a PULSE measurement is started, the Streamer is started and PULSE reads data from the tape
- **Pause:** Analysis can be paused using the Pause Button
- **Searching:** The streamer is searching the tape for a specified ID or address
- **Not Found:** Displayed if a search fails. A specified ID or address is not on the tape
- **No Tape:** Displayed if the streamer is connected but no tape has been loaded
- **No Front-end:** The AIT streamer cannot be found
- **Not Ready:** The AIT streamer is busy
- **Medium Error:** Tape read error
- **Illegal Format:** The tape format is not recognised
- **Tape Blank:** No data on the tape

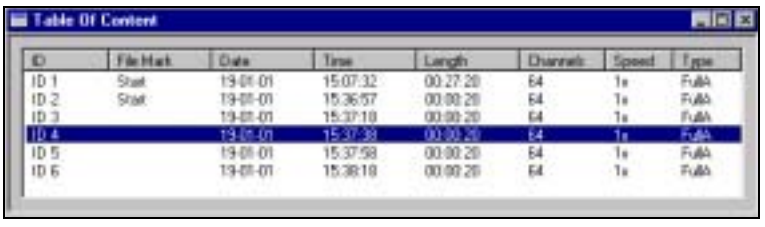


Fig. 3
The Table of Contents

The strengths of this solution are its speed and simplicity of operation as well as the fact that no proprietary hardware is required beyond the Sony® SIR-1000i or W and tape streamer. The data is read from the streamer, resampled, and played into PULSE for analysis in one operation, just like performing a standard measurement.

Advantages of using PULSE, along with its analysis capabilities, include its data-export (for use in various post-processing packages like Operational Modal or Sound Quality) and reporting features. PULSE can report directly in Microsoft® Word using drag and drop or link directly to Excel. PULSE Bridge to MATLAB further expands the possibilities for post-processing by providing easy export of data into MATLAB®.

Brüel & Kjær also supplies a range of other accessories that help you get more out of your Sony® SIR-1000i or W, including the 16-channel DeltaTron® Conditioning Amplifier Type 2694 with full TEDS support.

Specifications – PULSE Interface to Sony® SIR-1000 Type 7774

SUPPORTED HARDWARE
Sony® AIT Streamer type AIT90e–SB, AIT90i–SB, AIT130e–SB and AIT130i–SB

SUPPORTED FORMAT
AIT tapes recorded with a Sony® SIR-1000i or W AIT recorder

FREQUENCY RANGE

SIR-1000 Modes	Frequency Span	Max. PULSE Span
4 channels (SIR - 1000W)	160 kHz 80 kHz 40 kHz 20 kHz 10 kHz	102.4 kHz 102.4 kHz 51.2 kHz 25.6 kHz 12.8 kHz
8 channels (SIR - 1000W)	80 kHz 40 kHz 20 kHz 10 kHz 5 kHz	102.4 kHz 51.2 kHz 25.6 kHz 12.8 kHz 6.4 kHz
16 channels (SIR - 1000i / W)	40 kHz (W only) 20 kHz 10 kHz 5 kHz 2.5 kHz	51.2 kHz 25.6 kHz 12.8 kHz 6.4 kHz 3.2 kHz
32 channels (SIR - 1000i)	20 kHz 10 kHz 5 kHz 2.5 kHz 1.25 kHz	25.6 kHz 12.8 kHz 6.4 kHz 3.2 kHz 1.6 kHz
64 channels (SIR - 1000i)	10 kHz 5 kHz 2.5 kHz 1.25 kHz 625 Hz	12.8 kHz 6.4 kHz 3.2 kHz 1.6 kHz 800 Hz
128 channels (SIR - 1000i)	5 kHz 2.5 kHz 1.25 kHz 625 Hz	6.4 kHz 3.2 kHz 1.6 kHz 800 Hz

FREQUENCY RANGE IS READ FROM THE TAPE
Information about the frequency range is automatically read from the tape and used to limit the PULSE frequency range

CHANNEL SCALING IS READ FROM THE TAPE
Information about the maximum input voltage is automatically read from the tape and transferred to the PULSE Channel setting

TIME STAMP IS READ FROM THE TAPE
Supports IRIG–B time stamping via Sony® SIR-1000i or W: Information about the date and time of the recording is automatically read from the tape and used in spectra

OVERLOAD
When the signal level exceeds the overload level, an overload is reported to PULSE. This is the case if the input signal exceeds 112% of the input range

PLAYBACK SPEED
The playback speed is adjustable as a percentage of recording speed. The maximum playback speed depends on following parameters:
- Installed number Analysis Engines Type 7707
- Speed of the computer
- Number of channels
- Number and type of analyzers
- The maximum AIT streamer playback speed (approximately 130% of real-time for 32 channels and 20kHz)

TABLE OF CONTENTS AVAILABLE FROM PULSE
The Table of Contents contains
- ID number
- File start mark
- Recording Time
- Recording Length
- No of channels
- Tape speed
- Recording Type

WINDING FACILITIES
It is possible to wind (rewind) to a given ID
It is possible to wind (rewind) to a given time within a given ID

Ordering Information

Type 7774 PULSE Interface to Sony® SIR-1000

REQUIRED SOFTWARE
Type 7700 x Noise and Vibration Analysis
X = A – J corresponding 4-, 8-, 16-, 32-, 12-, 24-, 2-, 48-, 64- and 128-channel systems, respectively
Type 7707 Additional Analysis Engine

OPTIONAL ACCESSORIES
UL 0136 Sony® AIT90e–SB Streamer, external
UL 0137 Sony® AIT90i–SB Streamer, internal
UL 0214 Sony® AIT130e–SB Streamer, external
UL 0215 Sony® AIT130e–SB Streamer, internal
WQ 1309 Sony® SDX1–25C AIT Tape

See the separate System Data (BU 0229) for details of Types 7700, 7707 other PULSE software

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