MPEG Recorder and Player

▶ MTX100A

Product Information

The MTX100A MPEG-2 Recorder and Player offers a flexible, affordable solution for design evaluation and conformance testing of digital video products using MPEG-2 technology. The MTX100A records and plays out MPEG-2 transport streams compliant with ATSC, DVB and ISDB standards at the high data rates needed to verify and troubleshoot designs for high-performance video products and systems. The large internal storage, DVD drive and Ethernet download capability help you build and maintain a large library of test streams. The MTX100A offers continuous, error-free transport stream looping for long duration playout and PCR jitter insertion for stressing designs. Users can continuously loop all sample streams, including updating of all timestamps, continuity counters, time tables (TDT, TOT and STT), Normal Play-Time Reference and ISDB-T Reed Solomon FEC, without fear of buffer under- or overflow. New Ethernet network remote control functionality enables control of functions such as Play, Record, Clock Rate and Jitter Insertion using the SCPI (Standard Control for Programmable Instruments) command set.

The MTX100A can play any transport stream files, including custom transport streams created with off line multiplexers in the Tektronix MPEG Analysis Tools. In addition, the MTX100A can play data files in other formats, including elementary streams and files in DSS format.

Applications

Development

For the development of instruments that process digital television signals, the MTX100A is a powerful signal source for parametric stress tests and evaluation. Streams can be repeatedly played out into development systems and equipment without timing discontinuities, simulating transmissions easily and consistently.

Manufacturing

The ability to repeatedly playout a range of transport streams directly into equipment in a manufacturing environment is crucial when checking quality and conformance. The user interface makes control of MTX100A intuitive and simple and remote control interfaces provide the flexibility of remote and automated control.

▶ Features & Benefits

High Capacity Storage and High Data-rate Recording and Playout of MPEG Transport Streams Let You Build, Maintain and Use a Large Local Library of Test Streams

IEEE 1394b, USB 2.0, DVD Drive and GbE Interface Download of Transport Streams for Optimum Flexibility in Storing and Managing Transport Stream Libraries

Real-time Updating of Timestamps and Time Tables for Error-free Looping

PCR Jitter Insertion to Help You Fully Stress Your Product or System Design

Remote Control via Ethernet with Standard Command for Programmable Instruments (SCPI) Command Set

Sample Transport Streams Provided to Get You Started Quickly

Easy Integration With Tektronix MPEG Analysis Tools for Transport Stream Creation to Support Compliance and Stress Testing of Video Products Using MPEG-2 Technology

Integrated with Tektronix Monitoring Tools for Powerful and Cost-effective Transport Stream Monitoring and Error Recording

Color Hierarchical Display of Transport Stream Components for Quick and Easy Interpretation of Complex Structures

A Full Suite of Electrical Interfaces Lets You Address a Wide Range of Applications

▶ Applications

IRD/STB Design and Manufacturing Test

Evaluation of Professional MPEG Equipment

Performance Verification of MPEG Systems

Scheduling of Stream Playout and Recording for Broadcast and Production Line Applications

Tektronix

Enabling Innovation

Integration

The MTX100A can be used as a broadcast simulator when installing and debugging transmission chains by using test streams and recording transmissions. The user's control over the source material removes a major element of uncertainty when installing systems and equipment. This speeds up the installation and debugging process, and helps ensure a better end result. The large number of physical and electrical transport stream interfaces that Tektronix supports means that interfacing to other pieces of equipment in the transmission chain is easy.

Transmission

For error analysis of Transport Streams, the MTX100A provides continuous recording that can be controlled by external trigger signals from the MTM400 Transport Stream monitoring tool. Digital TV broadcasters and Network operators can analyze captured streams in depth using Industry leading Tektronix Analysis Tools.

A Scheduler application enables the MTX100A to be used as a simple content scenario server for transport stream based transmissions. The extendable storage allows users to tailor the amount of storage they require.

► Characteristics

System Characteristics

MPEG Stream Source Characteristics – Supports MPEG-2, DVB, ATSC and ISDB protocols. Records and plays out MPEG streams in multiple formats. Error-free looping. PCR jitter insertion.

Packet Length – 188, 204 or 208 bytes and Non-TS.

Maximum Data Rate –
- Memory: 200 Mbps.
- Disk: 120 Mbps.

Minimum Data Rate – 256 Kbps.

Number of Input/Output Interfaces – One DVB SPI I/O standard with a second I/O available.

Available Optional Interfaces – Asynchronous Serial Interface (ASI/M2S), Universal Parallel/Serial Interface, IEEE 1394 (Firewire), SMPTE 310M.

Internal Storage Capacity – 160 GB.

Internal Reference Clock – 27 MHz ±1 ppm.

External Reference Input – 27 MHz ±1 ppm (recommended).

Transport Stream Interfaces

DVB Synchronous Parallel Interface (Standard) – Connector: 25-Pin D-sub, Maximum data rate: 200 Mbps.

Asynchronous Serial Interface (Option 01) – Connector: BNC, Maximum data rate: 200 Mbps, User-selectable burst and non-burst transmission format.

Universal Parallel/Serial Interface (Option 02) – Parallel, Serial and Event Output Modes.
- Parallel Mode – Connector: 25-Pin D-sub, Maximum Data Rate: 200 Mbps, Output Levels: ECL, LVDS and TTL with/without termination, Single End Input Levels: ECL and TTL with termination.
- Serial Mode – Connector: 25-Pin D-sub, Maximum Data Rate: 40 Mbps, Output Levels: ECL, LVDS and TTL, Differential Input Levels: ECL and TTL with/without termination, Single End Input Levels: ECL and TTL with termination.
- Event Output – Connector: BNC.

IEEE 1394 / ASI Interface (Option 05) –
- IEEE 1394 Connector: 4-Pin standard, Data Rate: 400 Mbps.
- ASI Connector: BNC, Maximum Data Rate: 200 Mbps.

SMPTE 310M/ASI/SPI Interface (Option 07) –
- SMPTE310M Connector: BNC, Data Rate: 19.39 Mbps.
- ASI Connector: BNC, Maximum Data Rate: 200 Mbps.
- SPI In Connector: 25 pin D-sub, Maximum Data Rate: 200 Mbps.

Platform Characteristics

Operating System – Microsoft Windows XP.

Disk Space – System: 5 GB, MPEG storage: 155 GB.

RAM – 512 MB.

Optical Storage Drive – CD-R/W, DVD-R/RW, DVD+R/RW.

Display – LCD, 640x480.

Character Input – Keypad.

Keyboard and Mouse – Standard.

Interfaces – VGA output, Printer port, Serial port, USB 2.0, 1000Base-T Ethernet, IEEE 1394b.

Environmental Characteristics

Temperature –
Operating: +5 ºC to +40 ºC.
Nonoperating: –20 ºC to +60 ºC.

Humidity –
Operating: 20% to 80% (noncondensing).
Nonoperating: 5% to 90% (noncondensing).

Altitude –
Operating: Up to 3 km.
Nonoperating: Up to 12 km.

Regulatory

EMC – EN61326-1.

Safety – UL61010-1, CAN/CSA C22.2 No. 61010-1-04, EN61010-1.

Australia Declaration of Conformity – AS/NZS 2064.

Power Requirements

Mains Voltage Range – 100 to 240 VAC.
Mains Frequency – 50/60 Hz.
Power Requirements – 180 VA Max.

Physical Characteristics

Dimensions	**mm**	**in.**
Height	132	5.2
Width	214	8.4
Depth	435	17
Weight	**kg**	**lbs.**
	6.2	13.7

PC System Requirements for Scheduler Software

The following PC configuration is required for installation –
Intel or 100% compatible motherboard chipset.
Windows 2000 Operating System or Windows XP Operating System.
256 MB RAM.
2 to 3 MB of available hard disk space for applications and documentation.
VGA (640x480) resolution video adapter and monitor. (XVGA (1024x768) or higher resolution recommended.)
CD-ROM or DVD drive.
Keyboard and Microsoft Mouse or compatible pointing device.
IMPORTANT NOTE –
Apart from those specifically authorized by Tektronix, no other applications should be installed on the PC. If other applications are installed, they may interfere with the operation of the software supplied. Software operation under these circumstances cannot be guaranteed.

▶ Ordering Information

When ordering Option 05, please consider the following guidelines:

- When considering the purchase of Option 05 (Firewire), the MTX100A's Option 05 interoperability with the target device should be verified prior to order placement
- Interoperability of Option 05 (Firewire) with a given model of a manufacturer's product does not guarantee interoperability with other models from the same manufacturer
- Interoperability of Option 05 (Firewire) with a given model of a manufacturer's product does not guarantee interoperability with that same model employing new software or firmware

MTX100A Recorder and Player

Includes: Stream capture and playout with error-free looping and PCR jitter insertion, 512 MB RAM, 160 GB MPEG stream storage, sample streams, USB Keyboard and Mouse, Front Cover and User Manual.

Please specify power plug when ordering.

MTX100A Options

Options

Opt. 01 – Add ASI Interface Module.

Opt. 02 – Add Universal Parallel/Serial Interface Module.

Opt. 05 – Add IEEE 1394/ASI Interface Module.

Opt. 07 – Add SMPTE 310M/ASI/SPI Interface Module.

Opt. SC – Scheduler.

Service

Opt. C3 – Calibration Service 3 Years.

Opt. C5 – Calibration Service 5 Years.

Opt. D1 – Calibration Data Report.

Opt. D3 – Calibration Data Report 3 Years (with Opt. C3).

Opt. D5 – Calibration Data Report 5 Years (with Opt. C5).

Opt. R3 – Repair Service 3 Years.

Opt. R5 – Repair Service 5 Years.

Power Plug Options

Opt. A0 – North America Power.

Opt. A1 – Universal EURO Power.

Opt. A2 – United Kingdom Power.

Opt. A3 – Australia Power.

Opt. A4 – 240 V, North America Power.

Opt. A5 – Switzerland Power.

Opt. A6 – Japan Power.

Opt. A10 – China Power.

Opt. A99 – No power cord.

Language Options

Opt. L0 – English Manual.

Opt. L5 – Japanese Manual.

Optional Accessories

071-1754-xx – Service Manual.

WFM7F05 – Rackmount Kit.

1700F06 – Blank Panel.

MPEG Recorder and Player

- MTX100A

Contact Tektronix:

ASEAN / Australasia / Pakistan (65) 6356 3900
Austria +41 52 675 3777
Balkan, Israel, South Africa and other ISE Countries +41 52 675 3777
Belgium 07 81 60166
Brazil & South America 55 (11) 3741-8360
Canada 1 (800) 661-5625
Central East Europe, Ukraine and the Baltics +41 52 675 3777
Central Europe & Greece +41 52 675 3777
Denmark +45 80 88 1401
Finland +41 52 675 3777
France & North Africa +33 (0) 1 69 86 81 81
Germany +49 (221) 94 77 400
Hong Kong (852) 2585-6688
India (91) 80-22275577
Italy +39 (02) 25086 1
Japan 81 (3) 6714-3010
Luxembourg +44 (0) 1344 392400
Mexico, Central America & Caribbean 52 (55) 56666-333
Middle East, Asia and North Africa +41 52 675 3777
The Netherlands 090 02 021797
Norway 800 16098
People's Republic of China 86 (10) 6235 1230
Poland +41 52 675 3777
Portugal 80 08 12370
Republic of Korea 82 (2) 528-5299
Russia & CIS 7 095 775 1064
South Africa +27 11 254 8360
Spain (+34) 901 988 054
Sweden 020 08 80371
Switzerland +41 52 675 3777
Taiwan 886 (2) 2722-9622
United Kingdom & Eire +44 (0) 1344 392400
USA 1 (800) 426-2200
For other areas contact Tektronix, Inc. at: 1 (503) 627-7111

Updated 15 June 2005

Our most up-to-date product information is available at:
www.tektronix.com

Product Area Assessed. The planning, design/ development and manufacture of electronic Test and Measurement instruments.

8/05 HB/WOW 25W-14884-3

Tektronix
Enabling Innovation