

MPEG Recorder and Player

► MTX100B

**Test Equipment
Depot**
1-800-517-8431



Product Information

The MTX100B 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 MTX100B 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, USB 2.0 and Ethernet download capability help you build and maintain a large library of test streams.

The MTX100B 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 MTX100B can play any transport stream files, including custom transport streams created with offline multiplexers in the Tektronix MPEG Analysis Tools. In addition, the MTX100B 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 MTX100B 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 play out 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 MTX100B intuitive and simple, and remote control interfaces provide the flexibility of remote and automated control.

► Features & Benefits

New MTS400 Real-time and Offline Stream Analysis Options Running on the MTX100B Platform Provide the Broadest, Deepest and Most Portable MPEG Analyzer Available

New Large Resolution Screen for Enhanced Usability

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, USB2.0 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

Portable In-field Analysis Tool for System Installation, Commissioning and Debug of MPEG Transmission Systems

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Integration

The MTX100B 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 MTX100B 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 MTX100B 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.

Portable MPEG Analysis

The addition of the MTS400 MPEG analysis toolset to the MTX100B platform provides the broadest, deepest MPEG tool set on a highly portable platform. Ideally suited to in-field installation, commissioning and debug of complex MPEG transmission systems, the analysis options offered with the MTX100B provide both real-time and offline transport stream analysis capability with ASI, SMPTE 310M and IP interface options. Additional options provide offline multiplexing, PES and buffer analysis, elementary stream analysis, and data broadcast analysis and generation.

A separate data sheet is available covering the MTX100B Stream Analysis options in greater detail.

► 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 Mb/s.

Disk: 120 Mb/s.

Maximum individual file size of 100 GB.

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, IEEE1394 (Firewire), SMPTE 310M.

Internal Reference Clock – 27 MHz \pm 1 ppm.

External Reference Input –

27 MHz \pm 1 ppm (recommended).

Transport Stream Interfaces

DVB Synchronous Parallel Interface (Standard) –

Connector: 25-Pin D-sub, Maximum data rate: 200 Mb/s.

Asynchronous Serial Interface (Option 01) –

Connector: BNC, Maximum data rate: 200 Mb/s, 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 Mb/s, 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 Mb/s, 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 Mb/s.

ASI Connector: BNC, Maximum Data Rate: 200 Mb/s.

SMPTE 310M/ASI/SPI Interface (Option 07) –

SMPTE 310M Connector: BNC, Data Rate: 19.39 Mb/s.

ASI Connector: BNC, Maximum Data Rate: 200 Mb/s

SPI In Connector: 25-Pin D-sub, Maximum Data Rate: 200 Mb/s.

Platform Characteristics

Operating System – Microsoft Windows XP.

Disk Space – 25 GB, MPEG storage: 135 GB.

RAM – 1024 MB.

Display – 1024x768, Color LCD.

Character Input – Keypad.

Keyboard and Mouse – Standard.

Interfaces –

VGA output, Printer port, Serial port, USB2.0,

1000Base-T Ethernet, IEEE 1394b.

Environmental Characteristics

Temperature –

Operating: +5 °C to +40 °C.

Nonoperating: –20 °C to +60 °C.

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 MTX100B'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.

MTX100B Recorder and Player

Includes: Stream capture and playout with error-free looping and PCR jitter insertion, 512 MB RAM, 150 GB MPEG stream storage, sample streams, USB keyboard and mouse, front cover and user manual. Please specify power plug when ordering.

MTX100B 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.

Note: Options 01, 02, 05 and 07 are mutually exclusive.

Important: Option 07 is required to run Opt. TSCX and Opt. MTX10UP Opt. TSCX.

Opt. IPE – Security Dongle key to add 10/100Base-T Video-over-IP electrical interface to MTX100B.

Opt. TSCX – Security Dongle key to add Real-time Transport Stream Compliance Analyzer to MTX100B.

Opt.TSCA – Security Dongle key to add Deferred-time Transport Stream Compliance Analyzer to MTX100B.

Opt. MX – Security Dongle key to add Deferred-time Multiplexer to MTX100B.

Opt. ES – Security Dongle key to add ES Analyzer to MTX100B.

Opt. PB – Security Dongle key to add PES and Buffer Analyzer to MTX100B.

Opt. DB – Security Dongle key to add Carousel Analyzer to MTX100B.

Opt. CG – Security Dongle key to add Carousel Generator to MTX100B.

Opt. DBCG – Security Dongle key to add Carousel Analyzer and Carousel Generator to MTX100B.

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MTX10UP Options

Opt. IPE – Upgrade to add Security Dongle key for 10/100Base-T Video-over-IP electrical interface to MTX100B.

Opt. MX – Upgrade to add Security Dongle key for Deferred-time Multiplexer to MTX100B.

Opt. ES – Upgrade to add Security Dongle key for ES Analyzer to MTX100B.

Opt. PB – Upgrade to add Security Dongle key for PES and Buffer Analyzer to MTX100B.

Opt. DB – Upgrade to add Security Dongle key for Carousel Analyzer to MTX100B.

Opt. CG – Upgrade to add Security Dongle key for Carousel Generator to MTX100B.

Opt. DBCG – Upgrade to add Security Dongle key for Carousel Analyzer and Carousel Generator to MTX100B.

Opt. TSCA – Upgrade to add Security Dongle key for Transport Stream Compliance Analyzer to MTX100B.

Opt. TSCX – Upgrade to add Security Dongle key for Real-time Transport Stream Compliance Analyzer to MTX100B.

Opt. UPG – Upgrade to add latest version of MTS4 series analyzer application software.

Opt. LZ0 – English Documentation for Portable Analyzer printed (MTS400).

Opt. LZ5 – Japanese Documentation for Portable Analyzer printed (MTS400).

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.