

MPEG Transport Stream Monitor for Broadcasters

► MTM400A



► MTM400A MPEG transport stream monitor.

MTM400A Simplifies DTV and Video Over IP Monitoring

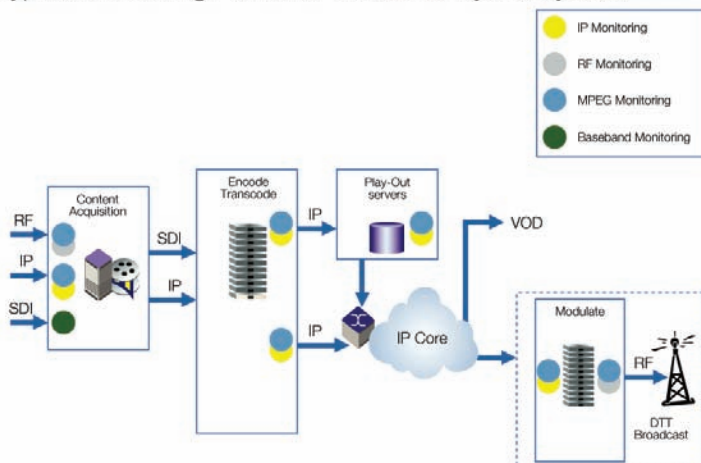
As the worldwide DTV market continues to evolve, a shifting of consumer viewing behavior combined with increasing competitive pressure is driving an explosion in broadcast channel count and overall capex investment. A key operational challenge for traditional broadcasters is how to efficiently deliver superior quality of service (QoS) levels to maintain differentiation in this competitive market. The MTM400A supports this by providing an intuitive and simplified presentation of video

quality and diagnostic information, to enable delivery of superior QoS levels in an increasingly complex broadcast environment.

The figure below shows the typical monitoring points for a **terrestrial hybrid** system.

The MTM400A is a powerful solution for monitoring DTV transmitter sites along with contribution and distribution at local and national operation centers.

Typical Monitoring Points for Terrestrial Hybrid System



► Figure 1: Typical Monitoring Points for Terrestrial Hybrid System.

► Features & Benefits

FlexVuPlus™ uniquely empowers operations staff with the simplest information to deliver superior Quality of Service (QoS) levels

Powerful diagnostic user interface with context sensitive navigation and filtered logging allows engineers to rapidly identify the root cause of underlying service problems

Unique dual-level alarming and seven-day trend information proactively identifies impending problems before they impact viewers

Multi-layer, Multi-channel, remote monitoring and measurement at IP, RF, and Transport Layers to DVB (TR 10 1290), ATSC, Digicipher® II (DCII), and ISDB-T (terrestrial and mobile) standards

Simultaneously monitor up to 500 IP sessions for all essential parameters including continuity count, sync byte and Packet Inter-arrival Time (PIT)

Simultaneously monitor Single Program Transport Streams (SPTS) and Multi Program Transport Streams (MPTS)

Comprehensive confidence monitoring at the RF modulated layer including key parameters MER, BER and Constellation

Simultaneous connection of multiple remote users and Network Management Systems (NMS) provides early visibility of problems to key individuals

Embedded architecture designed specifically for continuous 24 x 7 operation (disk free operation)

Remote recording allows capture and analysis of stream events for expert offline analysis to diagnose difficult and intermittent problems

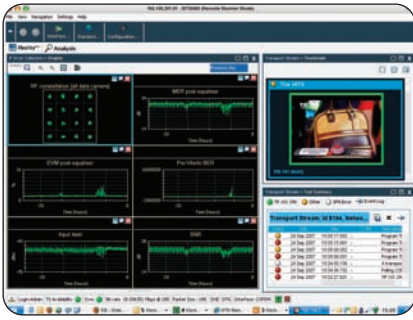
Highly-scalable and field-upgradeable monitoring solution to tailor capital expenditure with operational growth

► Applications

The MTM400A is a powerful solution for monitoring DTV transmitter sites along with contribution and distribution at local and national operation centers

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► Figure 2: *FlexVuPlus*™ configurable windows.

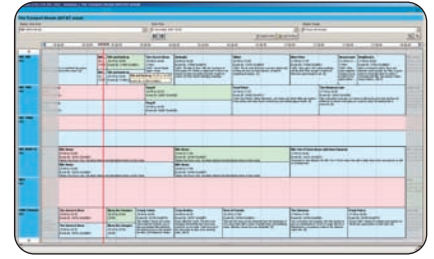
The MTM400A provides a complete solution for real-time transmission monitoring of MPEG transport streams over RF, IP, and ASI interfaces. Powerful confidence monitoring capability and deep diagnostic measurements are both combined within a single integrated solution. For extended confidence monitoring *FlexVuPlus* uniquely provides configurable summary displays that include video thumbnail and electronic program guide (EPG) views. This empowers operational staff with the simplest information necessary to ensure their service is delivering above their defined thresholds for superior QoS. Deep diagnostic options provide engineers with intelligent hierarchical views of network information, media and data allowing them to rapidly identify the root cause of underlying service problems.



► Figure 3: RF Trending view (with dual-level alarming limits).

Remote Interface

The **Remote User Interface (RUI)** is capable of providing simultaneous measurement results to multiple key resources, supporting improved organizational efficiency and work-flow to minimize network downtime. It is also capable of being integrated into wider network management platforms to support wider distributed network intelligence. The confidence monitoring capability uniquely simplifies DTV monitoring with the *FlexVuPlus* summary panels. For diagnostic monitoring, a context sensitive analysis paradigm provides a rich multi-layer environment that presents complex information, with an intuitive hierarchical approach. The supporting extensive navigation options ensure that you can identify the root cause of error alarms with minimal mouse clicks.



► Figure 4: EPG View.



► Figure 5: Video Thumbnail view.

Confidence Monitoring

- *FlexVuPlus* uniquely presents simplified presentation of video quality and diagnostic information to enable delivery of superior QoS levels in an increasing complex broadcast environment
- At-a-glance service view with video thumbnails and interactive electronic programming guide (EPG); empowering operations staff with the simplest information to monitor service delivery
- Comprehensive seven-day trending of IP and RF broadcast streams supports proactive network optimization to minimize downtime

Diagnostic Monitoring

- Powerful user interface provides intelligent hierarchical views of network information, media and data allowing engineers to rapidly identify the root cause of underlying service problems
- Accelerate time to insight with context sensitive navigation and filtered logging to isolate root cause of test failure

► Ordering Information

MTM400A

MPEG Transport Stream Monitor.

Includes: 1RU chassis fitted with transport stream processor card, manual, rack slides, power cord and license key certificate.

Options

- Opt. 01** – Triggered recording capability up to 160 MB.
- Opt. 02** – Transport stream service information analysis (PSI/SI/PSIP/ARIB view).
- Opt. 03** – Template testing (for user-defined service plan testing).
- Opt. 04** – In-depth PCR analysis with graphical result views.
- Opt. 05** – Bit rate testing functionality.
- Opt. 06** – Service logging.
- Opt. 07** – IP/RF Polling functionality.
- Opt. CF** – COFDM Interface.
- Opt. QB2** – QAM Annex B Level 1 and Level 2 Interface.
- Opt. EP** – 8PSK/QPSK Interface.
- Opt. VS** – 8VSB Interface.
- Opt. QA** – QAM Annex A interface.
- Opt. QC** – QAM Annex C interface.
- Opt. GE** – Gigabit Ethernet Interface with 10/100/1000BASE-T RJ45 electrical port.
- Opt. SX** – 1000BASE-SX Short Wavelength Optical port with LC connector Opt. Mode 850 nm (requires Opt. GE).
- Opt. LX** – 1000BASE-LX Long Wavelength Optical port with LC connector Single Mode 1310 nm (requires Opt. GE).
- Opt. ZX** – 1000BASE-ZX Optical port with LC connector Single Mode 1550 nm (requires Opt. GE).

International Language Options

- Opt. L0** – English User Guide.
- Opt. L5** – Japanese User Guide.

Complementary Products

MTS4SA – Standalone Deferred Time Software package.

Opt. TSCL – DVB/ATSC/ARIB TS Compliance Analyzer Software (TS file size limited to 192 Mbytes). For full details see separate data sheet.

Service

Opt. R3 – Repair service three years (including warranty).

Opt. R5 – Repair service five years (including warranty).

Power Connections

Opt. A0 – North America Power Plug.

Opt. A1 – Universal EURO Power Plug.

Opt. A2 – United Kingdom Power Plug.

Opt. A3 – Australia Power Plug.

Opt. A4 – 240 V North America Power Plug.

Opt. A5 – Switzerland Power Plug.

Opt. A6 – Japan Power Plug.

Opt. A10 – China Power Plug.

Opt. A99 – No Power Cord or AC Adapter.

Field Upgrade Kits

Upgrade Options

Field upgrade kit to add:

MTM4UP Opt. QA – Adds QAM Annex A Interface to an existing probe.

MTM4UP Opt. QC – Adds QAM Annex C Interface to an existing probe.

MTM4UP Opt. CF – Adds COFDM Interface.

MTM4UP Opt. QB2 – Adds QAM Annex B Interface.

MTM4UP Opt. EP – Adds 8PSK/QPSK Interface.

MTM4UP Opt. VS – Adds 8VSB Interface.

MTM4UP Opt. 01 – Adds triggered recording capability up to 160 MB.

MTM4UP Opt. 02 – Adds transport stream service information analysis (PSI/SI/PSIP/ARIB view).

MTM4UP Opt. 03 – Adds template testing (for user-defined service plan testing).

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MTM4UP Opt. 05 – Adds bit rate testing functionality.

MTM4UP Opt. 06 – Adds service logging.

MTM4UP Opt. 07 – Adds IP/RF Polling functionality.

Upgrade Kit To Add

MTM4UP Opt. GE – Adds Gigabit Ethernet Interface With 10/100/1000BASE-T RJ45 Electrical Port.

MTM4UP Opt. SX – Adds 1000BASE-SX Short Wavelength Optical port with LC connector (Multi Mode 850 nm) for Gigabit Ethernet Interface (requires Opt. GE).

MTM4UP Opt. LX – Adds 1000BASE-LX Long Wavelength Optical port with LC connector (Single Mode 1310 nm) for Gigabit Ethernet Interface (requires Opt. GE).

MTM4UP Opt. ZX – Adds 1000BASE-ZX Optical port with LC connector (Single Mode 1550 nm) for Gigabit Ethernet Interface (requires Opt. GE).

Other

MTM4UP Opt. IFC – One-time install of all selected options and calibration for one product.

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For Further Information

Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com



Product(s) are manufactured in ISO registered facilities.

Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

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