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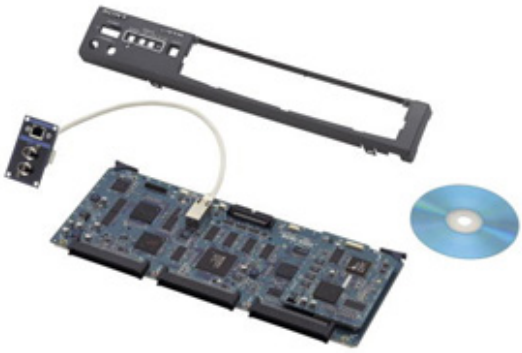
BKMW-E3000

e-VTR option for MPEG IMX Digital VTRs, Gigabit Ethernet interface, MXF file exchange



Enabling the present, protecting the past

There is a continuing shift from traditional step-by-step programme production to workgroup-based production across computer networks. The increasing speed of networks, the availability of lower cost IT system components and the use of open file exchange mechanisms will accelerate the rate of this shift.

At the same time, programme production on tape is ubiquitous, and is in widespread use for the contribution and delivery of programme content. Users around the world are, therefore, looking for efficient ways to integrate their AV and IT infrastructures, to take advantage of the benefits of a combined AV/IT operation.

The BKMW-E3000 is an optional plug-in accessory for MPEG IMX VTRs. It adds e-VTR functionality to the MPEG IMX VTR and provides an IP address, a Gigabit Ethernet interface and the ability to send and receive MXF (Material Exchange Format) files across a standard IT network.

When installed into an MSW-M2000P or MSW-M2000P/1 MPEG IMX VTR, users can output MXF files from any standard definition Betacam-family cassette. This provides a single gateway from the 200,000,000 Betacam-family tapes in use today, to the anycast world of MXF and IT.

In summary …

e-VTR = MPEG IMX VTR + BKMW-E3000

Features

Low cost upgrade for MPEG IMX VTRs

The BKMW-E3000 can be quickly and easily installed into MPEG IMX VTRs. Users who already have MPEG IMX VTRs in operation, can upgrade to e-VTR functionality at a fraction of the cost of the VTR itself.

Lossless transfer of MPEG-2 data via Gigabit Ethernet networks

The Material Exchange Format (MXF) lets you transfer MPEG IMX video data between devices without any degradation of picture quality. This MPEG IMX data complies with SMPTE 356M, the D-10 bit stream standard. Uncompressed digital audio and metadata can also be exchanged across the network with no degradation to the original data.

Industry standard network interfaces and protocols

The e-VTR is equipped with an IEEE 802.3ab 1000Base-T interface which uses an RJ-45 connector. The e-VTR uses TCP/IP and File Transfer Protocol (FTP) for exchange of MXF files between devices. FTP is also used to control the e-VTR via the network.

Two-way transfer of MXF files

The e-VTR can output MXF files from any standard definition Betacam-family cassette. In addition, MXF files carrying D-10 MPEG IMX data can be input to the e-VTR from the network. The D-10 data is "unwrapped" from the file and recorded onto an MPEG IMX cassette. A large MPEG IMX cassette can record up to 220 minutes of material when operating in 625/50 mode.

Supplied application software for simple e-VTR control

A software application is provided for simple control of multiple
e-VTRs on the network. This windows-based application allows files to be selected and then dragged and dropped from one e-VTR to another. The application provides tools for the creation, naming, browsing and deletion of files.

Low resolution browsing for shot selection and approval

Remote agencies and production centres frequently need to view content for approval, or incorporation into programmes or commercials. The e-VTR can output low-resolution browse quality video and audio from any standard definition Betacam-family cassette. This allows editorial decisions to be made while keeping network traffic low. After a specific shot has been identified, a full quality 50Mb/s version can be delivered via the network. The format of the low resolution output is based upon MPEG-4 and is the same as that used in the XDCAM system.

Internal web server for browsing via a PC

The e-VTR generates HTML pages from an internal web server. A standard Windows-based browser can view these pages to browse machine set-up menus and video/audio file attributes.

Tele-File system for automatic location of files on tape

For fast access to individual files, the e-VTR must know their precise location on tape. The e-VTR uses the Tele-File system to achieve this. Tele-File cassette labels contain a memory chip onto which data can be written and subsequently read. This read/write process is achieved using a non-contact reader/writer that is built into the cassette compartment of each MPEG IMX VTR. During the recording of an incoming file, the e-VTR writes its IN and OUT point to the Tele-File label on the MPEG IMX cassette.

If this tape is subsequently used in another e-VTR, the e-VTR reads the Tele-File label and immediately knows the IN and OUT point of every file on the cassette.

Tele-File labels can be purchased in batches of 100, and can be attached to any Betacam-family cassette.

Automatic buffering of data to and from the network

Video data from an MPEG IMX cassette is read from tape at a constant data rate of 50Mb/s. But the available bandwidth on a Gigabit Ethernet network can frequently be much lower than this. The e-VTR has intelligent - and automatic - buffering built-in. An internal solid-state buffer, combined with intelligent control of the tape transport ensures that the 50Mb/s data is correctly transferred across the network even when data traffic on the network is high.

525/625 switchable for international operations

Material can be recorded and replayed by the e-VTR in either 525/60 or 625/50, and your 525 and 625 Betacam, Betacam SP, Betacam SX and Digital Betacam tapes can also be replayed.

Metadata enabled

The use of metadata is set to revolutionise the generation, storage and management of programme content. The e-VTR has been designed to operate in the broadcast systems of today and tomorrow, and can receive, record and replay metadata contained within the MXF file.

Benefits

The picture quality you need for the most demanding programme productions

Great picture quality is the key to the successful production of programmes such as drama, natural history and sport. This, combined with excellent multi-generation editing performance is crucial for complex productions.

The BKMW-E3000 is a plug-in accessory for MPEG IMX VTRs. This established family of recorders and players uses MPEG-2 4:2:2P@ML data compression at 50Mb/s for recording and replay of the video signal. This standard has been recognised by the European Broadcast Union (EBU) as one of the compression families upon which future broadcast systems should be built. MPEG IMX guarantees the quality you need for your most demanding productions.

Standardised operation throughout

Adherence to recognised standards is mandatory within systems used for workgroup-based production, and the e-VTR is standardised throughout. The BKMW-E3000 works with
MPEG IMX VTRs, which comply with SMPTE 365M, D-10.

The BKMW-E3000 takes the D-10 data and "wraps" it into an MXF file (Material Exchange Format). MXF has been submitted to SMPTE for standardisation.

Once "wrapped", the data is then exchanged across the network using standard TCP/IP protocol. This adherence to recognised standards ensures open operation with an extensive range of products and systems from multiple manufacturers.

Easy migration from existing infrastructures

Implementation of IT-based production systems can bring dramatic improvements in working efficiency and speed. But unless you are starting a completely new venture, integration of your existing media assets is vital if revenues are to continue to flow. By ensuring that all Betacam-family tapes are "MXF ready", the e-VTR provides a seamless integration of your AV and IT systems.

Simplified "ingest" for networked production

Multiple e-VTRs can be controlled from a central GUI via the network. This simplifies the "ingest" of material into your operation. With all ingest decisions being made from a centralised location, skilled operators can be deployed to areas of maximum benefit.

Removal of geographic boundaries

Collaborative workflow across production groups in different geographic areas will continue to increase in popularity. The e-VTR can be used as part of an in-house Local Area Network (LAN), but is equally effective across Wide Area Networks (WANs). This opens up new possibilities for the browsing, selection and exchange of content irrespective of the location of the material.

Reduction of equipment downtime

Minimising equipment downtime is vital to ensure maximum return on investment. The e-VTR supports Simple Network Management Protocol (SNMP). SNMP is in use worldwide for network and equipment

monitoring. Its use in the e-VTR allows remote monitoring and effective scheduling of maintenance for minimum disruption to your operations.

Technical Specifications

General	
Power Requirements	Power is supplied from the MSW-2000P Series MPEG IMX VTR
Operating Temperature	+5C to +40C (+41F to 104F)
Storage Temperature	-20C to +60C (-4F to +140F)
Operating Humidity	25% to 80% (no condensation)
Board Dimensions	355 mm x 146 mm
Front Panel Dimensions	430 mm x 70 mm x 45 mm
Connector Panel Dimensions	72 mm x 42 mm
Mass	Approx. 560g (Board + Panels)
Network Interface	RJ-45, Gigabit Ethernet, 1000Base-T

System requirements for supplied e-VTR application software	
PC Operating System	Microsoft Windows XP or 2000
Web Browser	Netscape (Version 6 or later) Internet Explorer (Version 5 or later)
Direct X	8.16 or later
CPU	1 GHz or higher
Memory	256 MB or more
Hard Disk Drive	Available space of 5 MB or more
Drive	CD-ROM
Display	Recommended XGA (1024 x 768) or more