Full Motion Video (FMV) Kit™
Product Specification
Scope of Document
To provide details of the Hardware and Software specification of the 4K Solutions, LLC Full Motion Video (FMV) Kit™.

Product Description
The FMV Kit™ is a rugged, man-portable well designed comprehensive and robust integration kit that provides system and networking technicians a complete video integration solution. It comes equipped with all the hardware and software required for the integration of five video sources. FMV Kits™ can support 3G, HD-SDI, SD-SDI, DVI, MDMI, SMA, Composite, BNC, as well as digital embedded audio or analog audio. The FMV Kit™ comes complete with an assortment of 37 video and audio cables, 64 video connectors, adapters and a multi-compartment storage case.

The FMV Kit™ comes with 5 High Definition (HD) IP Set-Top-Boxes (IP-STB) which are able to deliver high performance, along with the required connectivity including AV, HDMI, USB & S/SPIF. The FMV Kit™ STB’s provide interoperability with most flat-panel TV and can decode resolutions up to 1080i 60 Hz but is also able to de-interlace content and display it progressively – such as de-interlacing 180i to 1080p – to deliver the picture quality you expect on your high-end LCD and Plasma TVs.

The FMV Kit™ is ideally suited for:
- Point-to-Point video contribution with ultra-low latency
- Dissemination of Situational Awareness and Full Motion Video (FMV) content across LANs and WANs
- Intelligence Security and Surveillance (ISR) video from mobile and airborne vehicles
- Full HD 1080p60 monitoring
- Encoding and multicasting high-res HDMI/DVI sources
- Digital Signage
- Streaming PC Screens over the LAN / WAN
- Distribution of TV Content on the organizational network

Hardware Specification
Storm i2950

31.30" x 20.40" x 12.20" (79.5 x 51.8 x 31 cm)
Weight: 61lbs (27.66 kg’s) full loaded
**IPTV Services with Maximal Reach**

MGW Micro Premium is Optibase’s most advanced industrial-grade, MPEG4 H.264 portable encoding and streaming appliance ever. With TurboVideo™ technology, MGW Micro Premium is designed for low latency distribution of high definition and standard definition video sources across the enterprise, utilizing minimal bandwidth while preserving broadcast quality video up to full HD 1080p60 resolutions.

**Applications**

- Point to Point contribution with ultra-low latency
- Dissemination of Situational Awareness and Full Motion Video (FMV) content across LAN’s and WANs
- Intelligent Security and Surveillance (ISR) video from mobile and airborne vehicles
- Full HD 1080p60 monitoring
- Encoding and multicasting high res HDMI/ DVI sources
- Digital Signage
- Streaming PC screens over the LAN/ WAN
- Distribution of TV content on the organizational network

**Benefits**

- High density with multiple encoding engines to support 1xHD or 4xSD sources
- Ultra small form factor, ideal for mobile applications
- Rugged, fanless, securable enclosure, optimized for harsh environments
- Transport infrastructure agnostic: Satellite, xDSL, LANs, WANs and fiber
- Industry-standard open architecture allows decoding TurboVideo™ streams with any H.264 players in low delay

**Key Features**

- Superb HD and SD MPEG-4 H.264 compression quality
- Supports a wide range of bit rates, frame rates and resolutions
- CoT to KLV conversion and streaming
- Airborne ready rugged design with no moving parts
Less than 65 milliseconds latency with metadata insertion
- Built-in AES 256/128-bit encryption, fully integrated with Optibase EZ TV and FITIS players
- Flexible inputs: 3g, HD/SD-SDI, DVI, HDMI and Composite in one appliance

Ability to encoding a video source at 4 different resolutions and data rates in parallel

**Video**
Standards: H.264 (ISO\IEC) 14496-10 AVC MPEG-4 part 10)
- Baseline Profile L3
- Main Profile L3 and L4
- High Profile L4 and L4.2
Bit Rate: 100 kbps – 15 Mbps
Frame Rate: 1-60 fps
Bit Rate Regulation Modes: Constant
Resolutions: Configurable from QCIF up to Full HD 1920X1080p60
Encoding Latency: 65 milliseconds (TurboVideo™ mode)

**IPTV Services with Maximal Reach**
MGW Micro is the smallest, professional grade, rugged MPEG-4 H.264 Full Motion Video (FMV) encoder available, optimized for mobile and airborne platforms as well as mission critical deployments. MGW Micro uses advanced MPEG4-4 AVC (H.264) video compression to ensure excellent video stream quality and using low bandwidths. With advanced video processing features such as real-time metadata insertion, video masking, text overlay and boot up time of 2 seconds the Optibase MGW Micro is the optimal solution for UAV’s and other ISR applications.

**Applications**
- Tactical Video / KLV Metadata Insertion
- Intelligence Security and Surveillance (ISR)
- Mobile and Airborne Vehicles
- Point to Point Contribution
- Monitoring

**Benefits**
• Ultra small form factor, ideal for mobile applications (weight: 0.85 lb)
• Rugged, securable enclosure, optimized for extreme environments
• Suitable for any transport infrastructure: Satellite, xDSL, LANs and WANs
• Enables access to situational awareness and tactical video from the edge

Key Features

• Superb full motion video MPEG-4 H.264 compression
• Supports a wide range of bit rates, frame rates and resolutions
• CoT to KLV conversion and streaming
• Airborne-ready rugged design with no moving parts
• Streams FMV sources in low latency with metadata insertion
• Masking, text overlay and IP tunnelling
• Low power consumption of less than 5W
• Withstands extreme temperatures: -40C-70C (-40F to 158F)

Video

Standards: Standard Definition - H.264 baseline and main profile Bit Rate: 64 kbps –2.2 Mbps
Frame Rate: 5-30 fps
Bit Rate Regulation Modes: Constant / Variable
Resolutions: QCIF / CIF / 2CIF / HalfD1 / Full D1
Low-Latency Encoding

Keyboards, Wireless (Amino) (2)

Wireless Keyboard for configuring and managing Amino 140 STB’s

Audio & Visual Interface Cables

DVI-DVI Cable
VGA-VGA Cable
BNC-BNC Coax Cable
Composite-Composite Cable
S-Video Cable
Composite Audio Red and White
Premium Serial Data Cable
HDMI Cable

Connectors & Adapters

- BNC-Composite
- Composite-BNC
- DVI-VGA
- VGA-DVI
- BNC-F Type
- F Type-BNC
- SMA-BNC
- BNC-SMA
- Triaxial-BNC
- BNC-Triaxial

Compartment Box

Compartmented Box for Connectors

Serial Number & Barcode Label

Each FMV Kit™ has its own Serial Number and barcode label
Documentation

Each FMV Kit™ ships with the equipment Operating Manual and/or CD-ROM.

Features

- Each FMV Kit™ is clearly marked and serial numbered for easy property book management.

Intelligence, Surveillance & Reconnaissance & Video Source Systems Supported

- Rover 6
- Packwind
- Global Broadcast Systems (KA-10, TGRS 8,9,10)
- AFRTS
Fielding Strategy

Fielding Plans

FMV Kits™ are designed to be used at the lowest echelons. Providing the technicians in the field all of the technology capabilities to distribute live video over the wide area network (WAN) and local area network (LAN). If you have a requirement to distribute live video (ISR, News, GBS) to your command and staff then the FMV Kit™ is what you need.

Communications and Intelligence staffs at these levels can all use the FMV Kit™, by 4K Solutions.

- Division
- Wing
- Brigade
- Regiment
- Group
- Squadron
- Battalion
- Company

FMV Kit™ s laid out for Property Book inspection prior to being assigned to units.
VITEC Multimedia

Company Information

Since 1988, VITEC Multimedia has been a worldwide leading provider of powerful digital video products that support end-to-end media solutions for Broadcast, Corporate, Education, Government, Industrial, Medical, Military, and Telco customers.

The Vitec Optibase MGW (Media Gateway) encoding and streaming IPTV platforms are designed for the most extreme environments and offer high reliability, all-hardware architecture with built-in redundancy and failover capabilities controlled by state-of-the-art secure management applications for clustering and multi-region installations.

Vitec Optibase streaming products offer optimized solutions for streaming over the LAN, wireless and satellite networks using a wide range of formats including MPEG-1, MPEG-2, MPEG-4, H.264 and Adobe Flash covering any bandwidth requirement with superior video quality. From ultra-small portable encoders to carrier-grade, multi-channel dense and rack space efficient platforms we offer professional and verified solutions for distribution, contribution, archiving and retrieval of live and on-demand assets. and failover capabilities controlled by state-of-the-art secure management applications for clustering and multi-region installations.

Optibase offers optimized solutions for streaming over the LAN, wireless and satellite networks using a wide range of formats including MPEG-1, MPEG-2, MPEG-4, H.264 and Adobe Flash covering any bandwidth requirement with superior video quality. From ultra-small portable encoders to carrier-grade, multi-channel dense and rack space efficient platforms we offer professional and verified solutions for distribution, contribution, archiving and retrieval of live and on-demand assets.

4K Solutions, LLC

Company Information

4K Solutions, LLC, is an information technology solutions manufacturer, consultancy and value-added reseller. The company brings over 20 years of Special Operations and Ranger Communications experience delivering direct critical communications support on some of the most demanding "no-fail" combat missions in the world. 4K Solutions manufactures the 1U Global UPS™ and Pel-PAK™ kit bags. 4K Solutions specializes in providing Business Development, Consulting, Professional Services, and Sourcing Emerging Technologies.

President David E. Theriault, CWO (Ret.) is a US Army Ranger combat veteran of OEF and OIF and his company is a self-certified Service Disabled Veteran Owned Small Business (SDVOSB).

www.4ksolutions.com, www.1uglobalups.com

4K Solutions, LLC – 8604 Freedom Trail, Midland, Georgia 31820
sales@4ksolutions.com – 706.593.9070
DUNS: 827623526 - CAGE: 55FR8

Disclaimer:
<table>
<thead>
<tr>
<th>Version number</th>
<th>Purpose / Changes</th>
<th>Author</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial draft</td>
<td>David Theriault</td>
<td>11/15/2011</td>
</tr>
<tr>
<td>2</td>
<td>Version 2</td>
<td>David Theriault</td>
<td>11/22/2011</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>