Messenger 2 Decoder (M2D)
HD/SD AVC/H.264 Decoder

The most important thing we build is trust.

Product Highlights

- Provides Ultra-Low-Latency for Real-Time Applications (down to ~44 mS) when used with Cobham’s Messenger 2 AVC Encoders and Transmitters
- Built-in HD to SD Down-Conversion
- Compact Design with Local Control & Monitoring
- Optionally mounts to Cobham’s MSR COFDM Rx
- Auxiliary Data
- Process one selectable program from a TS (transport stream) of up to 16 programs

Features

- DVB-ASI Inputs & Outputs
- LAN Inputs & Outputs
- Supports ISO 13818 Transport Stream Demuxing & NAL Streams
- Support up to 100 megabits per second H.264 stream processing
- Pre-processing adaptive noise filter - MCTF
- HD-SDI, DVI, Component & Composite Video Outputs
- Balanced Analog Audio Outputs
- Optional Genlock Capability
- Embedded Audio
- Ethernet Port Connectivity (10/100 Mbits/s) for Streaming and Control/Monitoring

The Messenger 2 Decoder (M2D) is a companion product to Cobham’s AVC Encoders and Transmitters providing the highest Video Quality with Ultra-Low Latency and Fast Recovery essential for Wireless Coverage of Real-Time events such as Sports and Surveillance Applications. It supports HD & SD AVC Baseline Profile Decoding with certain additions and exclusions as described in the specification section below including interlaced support.
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Provides AVC decoding with resolutions from CIF up to 1920 x 1080, frame rates to 60 frames per second, with Progressive or Interlaced formats, CBR all with down to ~45 ms delay when encoded with a Cobham AVC encoder. Additionally, with Cobham’s AVC Encoders, Instantaneous Decoder Refresh or re-lock can occur on slice boundaries providing the fastest recovery from corrupted streams. Both Frame and Field based Decoding is supported.

The M2D Decoder includes both DVB-ASI and Ethernet ports. The system also offers a choice of transport protocols with support for AVC embedded within a MPEG-2 TS (ASI input or over IP and raw H.264 bit streams. Both transport mechanisms can be delivered over UDP/IP and RTP/UDP/IP. A compressed stream can be input from the DVB-ASI interface, and reformatted for IP Streaming and output at the same time that it is being locally decoded. The Decoder incorporates error resiliency features. In the event of a damaged bit-stream, the Decoder can replace the corrupt slice with skips, and resume decoding at the next NAL unit. Alternatively, it can freeze the output until a new I-frame is received.

The Decoder can be set to tune video and audio in two ways: Auto or Manual mode. In Auto mode the unit will self acquire the first MPEG program in the transport stream and the first audio PID listed in the PMT for that Program.

1 Optional Feature

Specifications subject to change without prior notice
Typical values shown unless min or max is specified
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In Manual mode, for Multiple Program Transport Streams (MPTS), the program number can be selected. Within the selected MPEG program, each of the two audio processors can have an audio PID from that program selected.

The M2D can be controlled either through its front-panel control interface or through its WEB LAN GUI interface. Additionally, it has two LED status lights. One LED is for Input which if green when the selected input is OK (present and valid for transport stream interfaces, and meets settable criteria). The second LED status light is for Error conditions.

Specifications:

Serial Transport Stream I/O

General
Configuration: DVB-ASI or LAN IP, selectable (not used simultaneously)

ASI Serial TS Input/Output
# of ASI Inputs: 1, BNC-F
# of ASI Outputs: 1 (loop-through), BNC-F
Max TS Rate: Up to 100 Mbps

IP Serial Input/Output
# of Ethernet Ports: 1, RJ-45
Streaming Out Format: RTP/UDP/IP, UDP/IP Unicast or Multicast
Streaming In Format: RTP/UDP/IP, UDP/IP Unicast
Supports MPEG-2: Transport Stream over UDP/IP or RTP/UDP/IP
Output: DVB-ASI input can be reformatted for streaming and output at the same time that it is being decoded.

Single or Multi-program Support

MPEG Decoder (Video, 2 Audio)

General
Compatibility Standard: MPEG-4 AVC/H.264 Baseline Profile Plus
Interlace Support
Bit streams Accepted: AVC video in MPEG TS per ISO/IEC 13818-2
PES packets per ISO/IEC 13818-1
Video Bit Rate: 1 Mbps to 60 Mbps

Video Decoder
Format @ Frame rate: 1080P @ 30Hz, 29.97Hz, 25Hz, 24Hz, 23.98Hz
1080I @ 30Hz, 29.97Hz, 25Hz
720P @ 60Hz, 59.94Hz, 50Hz, 30Hz, 29.97Hz, 25Hz, 24Hz, 23.98Hz
480I @ 29.97Hz

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Aspect Ratio: 576I @25Hz
16x9, 4x3 (format dependant)

Audio Decoder
Decoder Capabilities: MPEG-1, layers I and II
MPEG-2, layer II,
MPEG-2 PES Formats: MPEG-2, MPEG-1
Audio Source: Selected Audio Services 1-2

Video Output
General
Output connectors: Qty 1 - HD-SDI, Qty 1 – DVI, Qty 1 - Component,
SD Only - Qty 2 – Composite
Output formats supported: 1920 x 1080 Progressive
1920 x 1080 Interlaced
1280 x 720 Progressive
720 x 480 Progressive
720 x 480 Interlaced
720 x 576 Interlaced
Frame rates: 60/50/30, 59.94/29.97, 25Hz
(progressive/interlaced)
(1080p limited to 30 frames per second max)
Aspect Ratio: 16x9 (fixed: 1080I, 720P)
16x9, 4x3 (format dependant)

HD-SDI (High Definition Serial Digital Interface)
Standard: SMPTE 292M
Data Bit Rate: 1.485Gbps
# of Serial Outputs: 1
Connector: BNC (x1), female
Embedded Audio
Embedded audio format: SMPTE299M
Sample rate supported: 48KHz
Sample rate out: 48 KHz
# embedded audio chs: 2 channels supported
Audio types supported: MPEG2 layer 1 and 2
Embedded audio control: No controls or enable; embedded audio is always on.

Analog Video
SD
Video format standards: PAL & NTSC Composite

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GMS Inc. doing business as Cobham Tactical Communications and Surveillance www.cobham.com/tcs
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# of Analog outputs: 2
Connectors: RCA-F

HD
Video format standards: Component
# of Analog outputs: 1 set (Y, Pb, Pr)
Connectors: RCA-F

DVI (Digital Visual Interface)
DVI Connector: DVI-I Socket – Female

Note: Can be converted to HDMI (Video Only) with external adapter (Sold Separately)

Misc I/O
25 Pin Circular Panel Mount

Audio Output
General
# of Services: 2 Mono or 1 Audio Stereo Pairs

Analog Audio Out
Output Type: Balanced, 2 channel pairs (+/-, L/R)
Connectors: Qty 2 – XLR-M
Cable w/Optional connectors: Qty 2 - XLR-M
Impedance: 600 ohms nominal

Remote Operation/Update Interface
Type: Ethernet, 10/100 BaseT
Connector: RJ45

Front Panel Indicators
Input LED: Green indicates valid input on selected input,
Off indicates no valid signal on the selected input
Error LED: Red indicates error is occurring
OFF indicates no errors detected

Power
DC Input: +9 to +36 VDC
DC Power: 15 Watts
AC Input Option: Via External Power Supply
Voltage Range: 100 - 120/ 200 – 240 VAC
Power: Maximum – 17.5W
Frequency: 47 – 63 Hz
Line cord: Detachable, 3-prong
Cooling: Forced air

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General
Operating Temperature: 0 to 50 degrees C
Operating Humidity: <95% Non-Condensing

GENLOCK (Option)
Genlock capability: HD – SD
Genlock Reference:
480i @ 29.97, Ref NTSC “black and burst”
1080i @ 29.97 fps
Ref NTSC “black and burst” or 1080i tri-level sync @ 29.97 fps
1080i @ 30 fps – Ref 1080i tri-level sync @30fps
1080i @ 50 fps – Ref 1080i tri-level sync @50fps
720p @ 50 fps – Ref 720p tri-level sync @ 50 fps
720p@ 59.94 fps–Ref 720 tri-level sync @ 59.94 fps
720p @ 60 fps – Ref 720 tri-level sync @ 60 fps

Physical Dimensions: 8.5” (W) X 10.75” (L) X 1.75” (H) (2” with feet installed)
21.6 cm (W) X 27.3 cm (L) X 4.5 cm (H)

Weight: 2.89lbs