



MediaNode™ Multiplexer MN20

Product Description

Harmonic broadcast products feature a compact design, full MPEG-2 compliance, SNMP-based network management and the endorsement of major broadcasters worldwide. The MediaNode MN20 statistical multiplexer combines and grooms MPEG-2 transport streams generated by encoders and other system components into the desired MPEG-2 transport stream rate(s). The MN20 multiplexer is especially effective at handling compression applications where multiple video, audio and data signals are required, or where complex multi-channel audio is needed.

The MediaNode MN20 multiplexer supports Harmonic's market-leading DiviTrackXE™ statistical multiplexing technology. DiviTrackXE stat muxing enables several MV encoders – MV40 or above – to share the compressed bandwidth for more efficient, higher quality encoding. The MN20 multiplexer also supports DataTrack™ technology for data transmission. Using DataTrack, video and data are multiplexed to optimize total available bandwidth. Other remultiplexer inputs may concurrently carry constant bit rate traffic.

The MN20 multiplexer manages functions such as scrambling and data injection. It can also add and drop program streams to maximize control over programming content.

The MN20 multiplexer features a modular design and can be configured for specific network needs. The MN20 multiplexer allows solutions for video and audio monitoring, statistical multiplexing, audio-only encoding and redundant switching. All or any part of the output stream can be encrypted. The MN20 also has a rich set of input and output network interfaces to allow seamless integration with such popular network types as ASI, IP/Ethernet, and ATM.

Based on the industry's most widely implemented standards, Harmonic broadcast systems are easy to expand and upgrade.

With over 10,000 channels of digital video shipped worldwide, Harmonic Inc. provides a solid foundation of outstanding performance and proven service.

Features

- Remapping of PIDs and PCR restamping
- Statistical multiplexing
- Add/drop multiplexing
- Scrambling and inserting ECMs and EMMs into MPEG-2 transport stream
- ATM inputs and outputs
- IP encapsulation over ATM
- Video and audio monitoring decoding
- DHEI stream input and output
- SMPTE/310M output (HDTV compatible)
- Parallel output (DiviCom M2P)
- 100 Mbps throughput
- DVB and ATSC compliance
- Modular design

Input Modules

DVB-ASI

Four industry standard DVB-ASI MPEG-2 streams per module
 Supports automatic detection of DVB-ASI or M2S signal format
 Remaps or discards PIDs for each port

ATM AAL-5

155 Mbps optical input (90 Mbps max payload)
 ATM Adaptation Level 5 (AAL-5) per ATM Forum AMS 1.1
 SONET and SDH framing
 Removes PCR jitter from network switching and ATM packetization
 48 concurrent Permanent Virtual Circuits (PVC) supported
 Remaps or discards PIDs for each VPI/VCI

Digital Headend Expansion Interface

Supports up to four independent DHEI transport stream inputs
 IRT 1000/2000 compatible

Ethernet & RS-232 Data

10 Base T port supports Ethernet input data services such as EPG and teletext (over TCP/IP and UDP)
 Three ports for input of RS-232 serial data, up to 38.4 kbps

Audio Encoder

Two stereo/dual channel encoders, per module
 MPEG Layer 2 compression
 Multiple audio modules may be used where more audio channels are required
 Bit rates of 32 - 384 kbps per channel sampled at 32, 44.1 or 48 kHz
 AES/EBU or SPDIF digital audio input: 110 Ω , 75 Ω or high impedance, balanced or unbalanced
 Analog audio input 600 Ω or high impedance
 Gain control on analog inputs
 High quality 18-bit A-to-D sampling

Output Modules

IP/Ethernet

MPEG-2 SPTS and MPTS over IP over Ethernet
 95 Mbps MPEG-2 data throughput
 100BaseT Ethernet RJ-45 interface
 IP unicast and multicast (RFC 1112) support

250 IP multicast streams supported (40 programs if PSI generated locally)

DVB-ASI

Four high-speed ports (DVB-ASI, M2S) with redundant connectors - 75 Ω BNC

Each port is independently configured with any mix of programs carried by the MN20

ATM AAL-5

45 Mbps coax (DOM) and 155 Mbps optical (AOM) signals supported
 AOM can remap a multi-program MPEG-2 transport stream to single program transport streams, each on a single ATM VCI/VPI
 32 (DOM) and 120 (AOM) concurrent Permanent Virtual Circuits supported

45 Mbps (DS-3) output on 75 Ω BNC per ATM Forum af-phy-0054
 Single mode or multi-mode optical fiber interface (AOM)

Traffic shaped output (AOM)

IP over ATM AAL-5

Implements IETF RFC 2684, UDP/IP encapsulation of MPEG-2 streams

User-defined IGMP Multicast Group Addresses

IP PDU size: 7 MPEG-2 transport stream packets

MPEG-2 streams per module: 1020

100 Mbps max MPEG-2 payload

Traffic shaped output

Digital Headend Expansion Interface

Supports up to three independent DHEI transport stream inputs at 26.97 Mbps

SMPTE/310M for 8VSB

SMPTE/310M compliant 19.39 Mbps signal to feed ATSC 8VSB modulators

CAS Scrambling

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| DVB or DES scrambling options |
| Accepts ECM and associated scrambling control words |
| Inserts EMM from subscriber authorization system |
| Supports up to 512 different control words simultaneously |
| Supports up to four conditional access systems using the same scrambling algorithm |
| Supports control word generation |

Monitoring Decoder

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| Confidence monitoring of any unscrambled standard definition MPEG-2 video and audio stream |
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DiviTrack Statistical Multiplexing

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| Up to 24 MV40 (or above) encoders can share the compressed bandwidth |
| Fixed-rate bit streams may be carried simultaneously with the stat muxed channels |

System management

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| SNMP over Ethernet |
| Configurable via Harmonic network management system |

Power

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|---------------------|----------------------------|
| Voltage | 90-264 VAC (48 VDC option) |
| Line frequency | 47-63 Hz |
| Typical Consumption | 275 W |

Physical

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|------|---|
| 3 RU | 13.3 cm H x 48.26 cm W x 53.3 cm D (5.25" H x 19" W x 21" D) |
| 4 RU | 17.7 cm H x 48.26 cm W x 53.3 cm D (7" H x 19" W x 21" D) |

Environmental cooling

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| Operating temperature | 5° to 40° C at sea level (derate 1° per 1000 ft. altitude) |
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Storage

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|-----------------------------|---|
| Operating humidity | 10 to 80% non-condensing |
| Electro-Magnetic Compliance | FCC Part 15 Class A, EN 55022 class A, EN 50082-1:1997, CE mark(89/336/EEC) |
| Safety | UL/cUL 1950, EN 60950, CE mark(73/23/EEC) |

Ordering Options

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| MN20 three-RU chassis (holds up to six modules) |
| MN20 four-RU chassis (holds up to ten modules) |



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