



**The SmartStream Encryptor Modulator (SEM)** Motorola's High Density Encryptor/Modulator/Upconverter product family provides cable operators with a cost and space efficient means to perform encryption, modulation and upconversion functions within the digital headend. Providing for up to 8 multiplexes of processing functionality in a single RU pack-age, the SEM significantly lowers the barrier to entry in an on-demand environment. Providing high-speed interfaces to servers and content aggregation systems, the SEM performs multiplex creation, encryption, 64/256QAM modulation and upconversion across the full HFC band. The SEM provides system operators with the necessary tools to launch narrow cast services as the HFC infrastructure evolves to allow subscribers to watch what they want, when they want.

The SEM is ideal for:

- Secure Session Based VOD Applications
- Cost Effective 256QAM Upgrades
- Lower Cost Digital Headend Deployments

Product configurations include:

- 1) Edge Configuration (On Demand applications) - Digital Baseband Input, encryption, modulation/upconversion
- 2) Uplink/Central Encryptor - Digital Baseband Input, encryption, high-speed output (no RF)
- 3) Dense Modulation/Upconversion- Digital Baseband Input, Modulation/upconversion

## FEATURES:

### Multiplex Creation

- Generation of 16 output streams from up to 1024 input streams
- PID filtering/re-mapping

### Encryption (optional)

- DigiCipher®II/MediaCipher encryption of up to 96 services

### Modulation

- 64/256 QAM Modulation for eight multiplexes
- Support for ITU J.83 Annex A (DVB), Annex B (SCTE), Annex C (Japan)

### Upconversion

- 4 Upconverters - 2 multiplexes per upconverter
- 88-864 MHz RF output

## INPUTS/OUTPUTS INCLUDE:

### General

- Receipt of up to 1024 input transport streams
- Output of up to 16 transport streams (MPTS)
- 900 Mbps aggregate input, 900 Mbps aggregate output
- ASI monitoring port

### GigaBit Ethernet

- 3 physical ports
- Optical support - 850, 1310, 1550 nm pluggable modules
- Loop through capable
- Output of up to 16 individual (MPTS)

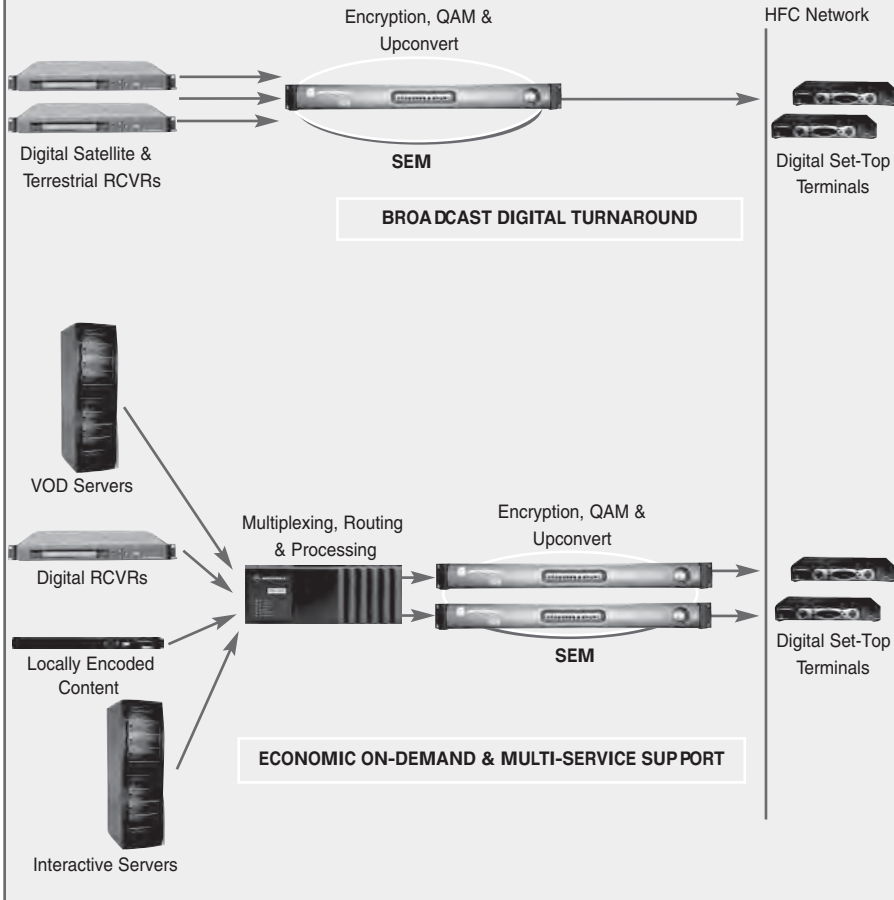
### 8 ASI Interfaces

- 4 ports always inputs, 4 ports configurable as "In" or "Out"
- 213 Mbps per input port, 206 Mbps per output port
- 8 On-Channel RF Outputs (optional)

### 8 On-Channel RF Outputs (optional)

- 4 physical output connections each with two adjacent RF channels
- 64/256 QAM

## MULTIPLE DIGITAL SYSTEM SUPPORT



## GENERAL SPECIFICATIONS

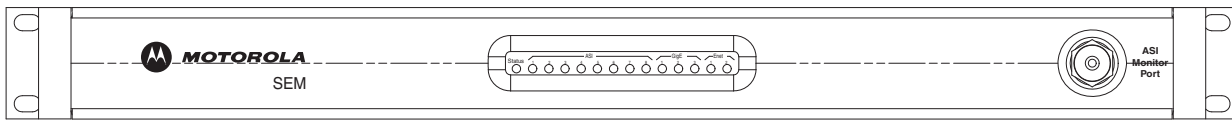
### Physical

Dimensions: Single RU  
 Inputs: GigaBit Ethernet  
 High-speed ASI  
 Output: QAM-RF  
 GigaBit Ethernet  
 High-speed ASI

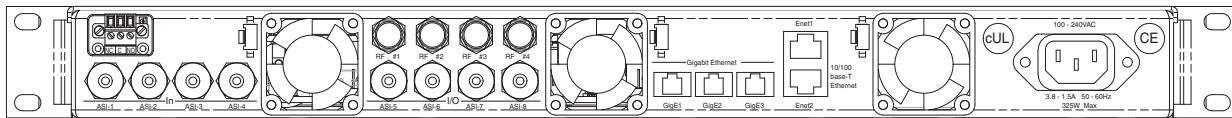
### Other

Limited Warranty: One year

## INPUTS/OUTPUTS



Front Panel



Back Panel