



# APEX1000

## All-Purpose Edge QAM (International Specifications)



### Physical Chassis

1 RU chassis with support for up to 36 8 MHz QAM channels or 48 6 MHz QAM channels, up to three removable and hot-swappable QAM modules per chassis (two block upconverted RF ports per QAM module)

### QAM Modules

Available in standard-density (SD) configuration (up to four QAM channels per port), high-density (HD) configuration (up to six 8 MHz or eight 6 MHz QAM channels per port), and a QAM module software upgrade to field-convert a SD module to a HD module

### Power Consumption

Extremely low power consumption (5 W to 7 W per QAM channel; 240 W total is typical when fully loaded)

### GigE Interface

Four GigE interfaces (SFP slots) with support for IGMPv3 and transport stream redundancy

### Power Supplies

Supports up to two hot-swappable redundant load-sharing power supplies (system can operate with either one or two); supports two AC, two DC, or either 1 AC or 1 DC

### Encryption and Conditional Access

- Supports full MediaCipher® encryption and conditional access as well as CTE for VOD scrambling in both MediaCipher and SCTE-52 modes
- Software upgradeable to CSA and AES encryption; capable of supporting third-party encryption through DVB Simulcrypt

### Full Video EQAM Feature Set

- De-jittering of CBR and VBR input streams
- Receive either MPTS or SPTS
- Transmit MPTS
- Support for MPEG remultiplexing, PID remapping, PSI generation, and PSI monitoring
- Support for external DVB SI generator
- Supports SNMP for configuration, control, alarms, and traps

### SDV and VOD Support

Standards-based solutions

### M-CMTS Standards

Software upgradeable to support the M-CMTS interfaces, including DTI, DEPI, and ERMI

The APEX1000 offers cost-effective and power-efficient multiplexing, encryption, and QAM/RF upconversion in a high-density platform.

### High-Density EQAM for Full-Featured, Cost-Effective Video and Data Services

The APEX1000, Motorola's next-generation all-purpose edge QAM, provides flexibility, high availability, high QAM density, MediaCipher encryption, and low power in an extremely cost-effective 1 RU platform. Up to three removable and hot-swappable QAM modules can be installed in the chassis. Each module provides two RF ports, which support up to six 8 MHz channels or eight 6 MHz QAM channels each. Any of the QAM channels available can be used for Video-on-Demand (VOD), Switched Digital Video (SDV), broadcast services, or DOCSIS® high-speed data (through support for the M-CMTS architecture).

The APEX1000 provides four SFP slots, allowing for up to four optical or electrical GigE inputs. This also allows the APEX1000 to support full transport stream redundancy covering all QAM channels.

The APEX1000 supports industry standards-based VOD and SDV solutions, allowing it to function as an SDV or VOD edge QAM in any standards-based cable network.

In addition, the APEX1000 performs network de-jittering, MPEG multiplexing, message insertion, and PSI generation following MPEG-2 transport specifications.

## SPECIFICATION SHEET

### APEX1000

All-Purpose Edge QAM (International Specifications)

#### MODULAR CHASSIS

Chassis Height	1 RU
Dimensions	4.3 cm x 48.3 cm x 63.2 cm
Weight	10.4 kg (fully loaded)
QAM Modules	Up to three per chassis; purchase standard-density (SD) or high-density (HD) modules; software upgrade SD to HD
Hot-Swappable	Yes
RF Ports	Two per QAM module
QAM Channels per RF Port	
Standard-density module	Up to four
High-density module	Six 8 MHz or eight 6 MHz

#### POWER

Power Supplies	Up to two per chassis
Load Sharing	Yes
Redundant	Yes
Hot-Swappable	Yes
Configurations	One or two AC One or two DC
AC Power Supply	100 to 240 VAC, 50/60 Hz
DC Power Supply	-40 to -75 VDC
Power Consumption	5 to 7 W/QAM channel (240 W total is typical when fully loaded)

#### ENVIRONMENTAL

Operating Temperature	0 °C to 40 °C
Storage Temperature	-40 °C to 70 °C
Cooling	Five fans, front-to-back airflow
Operating Humidity	5% to 95%

#### FEATURES

Broadcast Video	Supported
VOD/SDV	Industry standards and UDP port mapping, configurable on a per-QAM-channel basis
M-CMTS	DEPI, DTI, ERM1
Encryption and CA	MediaCipher and SCTE-52, Broadcast and CTE (for VOD); upgradable CSA and AES encryption and DVB Simulcrypt
Configuration/Control	Element Manager (SNMP), Motorola SDM (SNMP), console port (RS-232)

#### GIGABIT ETHERNET INPUT/OUTPUT

GigE MPEG Data	Receive only
Physical Ports	Four SFP slots
IGMPv3	Supported
Optical SFP Support	850, 1310, 15xx nm
Electrical SFP Support	1000Base-T

#### FAST ETHERNET INPUT/OUTPUT

Physical Ports	Two RJ-45 Ethernet
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#### RF OUTPUT

ITU J.83 Annex A, B, C; DRFI	
QAM Constellations	256 QAM and 64 QAM
Center Frequency Range	57 to 999 MHz
Carrier Frequency Step Size	250 KHz
RF Level Step Size	0.2 dB
Maximum RF Output Level	
One active channel	60 dBmV
Two active channels	56 dBmV
Four active channels	52 dBmV
Six active channels	50 dBmV
Eight active channels	49 dBmV
Input Impedance	75 Ω

Individual Components		
Component	Description	Part Number
APEX1000 Chassis	QAM modules and power supply modules sold separately	540274-001
QAM Module Standard Density (SD)	Two RF ports per module, enable up to four QAMs per port	540273-001
QAM Module High Density (HD)	Two RF ports per module, enable up to six 8 MHz or eight 6 MHz QAMs per port	540273-002
Power Supply Module (AC)	AC power supply	540272-001
Power Supply Module (DC)	DC power supply	540271-001
Set Configurations		
APEX1000 V48 AC	Includes one APEX chassis, one AC power supply module, three HD QAM modules	541928-001
APEX1000 V48 DC	Includes one APEX chassis, one DC power supply module, three HD QAM modules	541928-002
APEX1000 V24 AC	Includes one APEX chassis, one AC power supply module, three SD QAM modules	541928-003
APEX1000 V24 DC	Includes one APEX chassis, one DC power supply module, three SD QAM modules	541928-004
QAM Upgrade		
QAM Module Upgrade	Field-convert a SD QAM module to a HD QAM module	540400-001



# MOTOROLA

Motorola, Inc. 101 Tournament Drive, Horsham, Pennsylvania 19044 U.S.A. [www.motorola.com](http://www.motorola.com)

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