MODEL

APEX *1000*

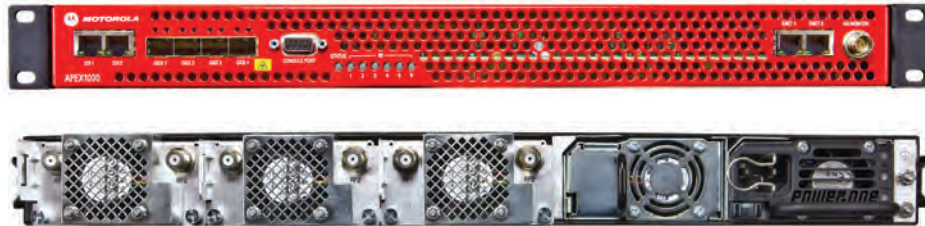## ALL PURPOSE EDGE QAM

Physical Chassis
1 RU chassis with support for up to 48 DRFI-compliant 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 2x4 configuration (up to four QAM channels per port), 2x8 configuration (up to eight QAM channels per port), and a QAM module software upgrade to field-convert a 2x4 module to a 2x8 module

Power Consumption
Extremely low power consumption (4 W/QAM channel when fully loaded, 192 W typical)

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
- Support for full session VOD encryption

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 genertion, and PSI monitoring
- Support for PSIP fixing and SCTE-18 EAS
- Supports SNMP for configuration, control, alarms, and traps

SDV and VOD Standards
Supports the RTSP, MHA, and RPC specifications

M-CMTS Standards
Support for the M-CMTS interfaces, including DTI and DEPI (MPT)

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 eight QAM channels each. Any of the 48 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 48 QAM channels.

The APEX1000 supports the NGOD R6 and D6 interfaces as well as the RPC SDV interfaces, allowing it to function as an SDV edge QAM in any standards based SDV system.

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

MODULAR CHASSIS

Chassis Height	1 RU
Dimensions	1.7 in x 19.0 in x 24.9 in
Weight	23 lb (fully loaded)
QAM Modules	Up to three per chassis; purchase 2x4 or 2x8 modules; software upgrade 2x4 to 2x8
Hot-Swappable	Yes
RF Ports	Two per QAM module
QAM Channels per RF Port	
2x4 module	Up to four
2x8 module	Up to eight

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	<4 W/QAM channel fully loaded (192 W typical)

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	RTSP, RPC, and UDP port mapping configurable on a per-QAM–channel basis
M-CMTS	DEPI and DTI
Encryption and CA	MediaCipher and SCTE-52, Broadcast and CTE (for VOD); upgradable CSA and AES Full session VOD encryption
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

MOTOROLA

FAST ETHERNET INPUT/OUTPUT

Physical Ports	Two RJ-45 Ethernet

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 (software version 2.1.0 or higher)	
One active channel	62 dBmV
Two active channels	58 dBmV
Four active channels	54 dBmV
Six active channels	52 dBmV
Eight active channels	51 dBmV
Input Impedance	75 Ω

Individual Components		
Component	**Description**	**Part Number**
APEX1000 Chassis	QAM modules and power supply modules sold separately	540274-001
APEX1000 Chassis with Broadcast License	QAM modules and power supply modules sold separately. Broadcast license included.	540274-003
QAM Module (2x4)	Two RF ports per module enable up to four QAMs per port	540273-001
QAM Module (2x8)	Two RF ports per module enable up to eight 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 Narrowcast configuration	Includes one APEX chassis, one AC power supply module, three 2x8 QAM modules	541928-001
APEX1000 V48 DC Narrowcast configuration	Includes one APEX chassis, one DC power supply module, three 2x8 QAM modules	541928-002
APEX1000 V24 AC Narrowcast configuration	Includes one APEX chassis, one AC power supply module, three 2x4 QAM modules	541928-003
APEX1000 V24 DC Narrowcast configuration	Includes one APEX chassis, one DC power supply module, three 2x4 QAM modules	541928-004
APEX1000 V48 AC Broadcast configuration	Includes APEX1000 V48 AC (541928- 001) along with the Broadcast support license	541928-005
APEX1000 V48 DC Broadcast configuration	Includes APEX1000 V48 DC (541928- 002) along with the Broadcast support license	541928-006
APEX1000 V24 AC Broadcast configuration	Includes APEX1000 V24 AC (541928- 003) along with the Broadcast support license	541928-007
APEX1000 V24 DC Broadcast configuration	Includes APEX1000 V24 DC (541928- 004) along with the Broadcast support license	541928-008
QAM Upgrade		
QAM Module Upgrade	Field-convert a 2x4 QAM module to a 2x8 QAM module	540400-001

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