APEX1000
All-purpose Edge QAM

PRODUCT OVERVIEW

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

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

The APEX1000, ARRIS'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. The QAM modules are available in three different hardware configurations. These are 2x4, 2x8, and 4x4. The first number indicates the number of RF ports, and the second number indicates the number of QAM channels per RF port. Any of the 48 QAM channels available can be used for Video-on-Demand (VOD), Switched Digital Video (SDV), or broadcast services.

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.

Physical Chassis

One RU chassis with support for up to 48 DRFI-compliant QAM channels, up to three removable and hot-swappable QAM modules per chassis.

QAM Modules

The APEX1000 supports up to three hot-swappable QAM module variations as shown in the table below. A QAM module soft upgrade is available to field-convert a 2x4 module to a 2x8 module.

QAM Module	RF Ports	QAM / RF
2x4	2	4 (frequency range 57 to 999 MHz)
2X8	2	8 (frequency range 57 to 999 MHz)
4X4	4	4 (frequency range 69 to 999 MHz)

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 encryption
- Support for full session VOD encryption (requires Vertasent ERM/GSRM and EPG support)

ARRIS

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 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

GENERAL SPECIFICATIONS

MODULAR CHASSIS

Chassis Height	One 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, 2X8 or 4X4 modules; software upgrade 2x4 to 2x8
Hot-Swappable	Yes

RF Ports

2x4, 2x8:	Two per QAM module
4x4:	Four per QAM module

QAM Channels per RF Port

2x4 module	Up to four
2x8 module	Up to eight
4x4 module	Up to four

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),ARRIS 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

RF OUTPUT

ITU J.83 Annex A, B, C; DRFI	
QAM Constellations	256 QAM and 64 QAM
Center Frequency Range	57 to 999 MHz (2x4 and 2x8 modules) 69 to 999 MHz (4x4 module)
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	540274-003-00
QAM Module (2x4)	Two RF ports per module enable up to four QAMs per port	540273-001-00
QAM Module (2x8)	Two RF ports per module enable up to eight QAMs per port	540273-002-00
QAM Module (4x4)	Four RF ports per module enable up to four QAMs per port	540273-005-00
Power Supply Module (AC)	AC power supply	540272-001-00
Power Supply Module (DC)	DC power supply	540272-002-00
Set Configurations		
APEX1000 V48 AC configuration	Includes APEX1000 V48 AC along with the Broadcast support license	541928-005-00
APEX1000 V48 DC configuration	Includes APEX1000 V48 DC along with the Broadcast support license	541928-006-00
APEX1000 V24 AC configuration	Includes APEX1000 V24 AC along with the Broadcast support license	541928-007-00
APEX1000 V24 DC configuration	Includes APEX1000 V24 DC along with the Broadcast support license	541928-008-00
QAM Upgrade		
QAM Module Upgrade	Field-convert a 2x4 QAM module to a 2x8 QAM module	540400-001-00

To order this service, contact your sales representative.

476666-086-00	APEX Configuration Service

CUSTOMER CARE

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656