Model D9479 Gigabit QAM Modulator (1 GHz)

With its exciting video transmission technology, the Model D9479 Gigabit QAM Modulator (GQAM) packs the broadband pipe with interactive services that your subscribers want and supports their growing demand for high-definition (HD) content.

Connect directly to current generation video servers, encoders, integrated receiver-decoders (IRDs), and other digital video sources using the four digital video broadcasting (DVB) standard asynchronous serial interface (ASI) inputs on the GQAM. Prepare for the future by using the Gigabit Ethernet (GbE) port to connect to the next generation of video servers, either linked locally with the GQAM or remotely through a network.

Make room for other devices in your headend. One GQAM frees up a total of *seven* additional rack unit openings. The GQAM contains the core functionality of four Model D9477 MQAM Modulators, making the GQAM an exceptional product for mass deployment of video-on-demand (VOD), *anything*-On-Demand (xOD), and other interactive broadcast services.

Figure 1. Model D9479 Gigabit QAM Modulator (1 GHz)

Features

Space Savings

- Contains the core functionality of the MQAM modulator
- Includes 6 input ports and can provide up to 16 QAM outputs to achieve the broadcast capacity of 4 MQAM modulators or 16 QAM modulators
- Enables higher rack density to save space

Network Utilization Enhancements

- Enables direct connect to both DVB ASI and Gigabit Ethernet video sources at the same time and the capacity to create transport streams from any combination of the 5 inputs
- Provides 4 DVB ASI inputs (216 Mbps each) and 1 plug-in Gigabit Ethernet input (GBIC) to multiplex content from any input to any of the 16 outputs (channels)
- Uses an output center frequency range of 91 to 999 MHz (*use of this increased frequency range may require a software upgrade*)
- Optimizes system management with provisioning and monitoring by the DNCS
- Facilitates deployment in either a headend or a hub

Content Security

- Incorporates PowerKEY® DES
- Supports DVB Common Scrambling Algorithm options

Figure 2. Back Panel Connectors

Product Specifications

Table 1. Product Specifications

Specification	Value
Digital I/O Performance	
Maximum Input Rate	1.804 Gbps (4 x 216 Mbps [ASI payload rate] plus 952 Mb/s [GbE payload rate])
Maximum Aggregate Output Rate	620 Mb/s (16 x 38.8 Mb/s)
RF	
Block Conversion	Up to four (4) 6 MHz QAM channels within a 24 MHz bandwidth per QAM output
Frequency Range (center frequency)	91 to 999 MHz capable
Minimum Tuning Step Size	The 24 MHz block of frequencies can be tuned in increments of 250 KHz
RF Output Power Level (per QAM carrier)	+44 to +54 dBmV (0.1 dB steps) minimum range **Note:** Noise and spurious performance limits apply with the output power in the range of 44 to 54 dBmV.
RF Output Power Tolerance **Note:** Actual output power is within ±2 dB of the value displayed for setpoint, temperature, and frequency variations. Power output adjustment range is from 42 to 56 dBmV.	± 2 dB
RF Output Impedance	75 ohm
RF Output Return Loss (unsquelched)	> 12 dB (within output channel)
Spurious Outputs (50 MHz to 1.1 GHz)	< -60 dB (relative to the average power of the QAM channel with the highest power level)
Noise Floor (out of band)	< -136 dBc/Hz, > 40 MHz from center frequency

Mechanical	
Rack Mount Type	EIA RS-310
Dimensions	1.75 in. x 19 in. x 22.5 in., HWD (44.45 mm x 482.6 mm x 571.5 mm, HWD)
Weight	13.5 lb (5.4 kg)
Environmental	
Operating Temperature Range	0°C (32°F) to 50°C (122°F)
Storage Temperature Range	-10°C (14°F) to 70°C (158°F)
Operating Humidity	5% to 95%, non-condensing
Electrical	
Input Voltage	AC unit: 90 to 130 VAC @ 47 to 63 Hz, or 180 to 264 VAC @ 47 to 63 Hz DC unit: -42 to -57 VDC
Power Required (AC unit)	155 VA (typical)
Power Dissipation	151 Watts (typical)
In Rush Current	35 amps maximum, Vin = 130 VAC (AC unit) 75 amps maximum, Vin = 264 VAC (AC unit) 15 amps maximum, Vin = -57 VDC (DC unit)
Connectors	
RF Outputs	4 total, type F, 75 ohm
ASI Inputs	4 total, BNC, 75 ohm
Gigabit Ethernet	GBIC module connector. Modules are available for single-mode fiber, multi-mode fiber, and copper interfaces
Ethernet 10/100BASE-T	RJ-45
Craft Port	DB-9 male
AC Power	IEC 320
DC Power	2-pin removable terminal block

Modulation						
6 MHz Spec	**Type**	**Alpha**	**Interleaver**	**Symbol Rate (Msymbols/sec)**	**Data Rate (megabits/sec)**	**Bandwidth**
ITU-A	DAVIC/DVB 64	12%	I=12, J=17	5.304	29.328 Mb/s	6 MHz
ITU-A	DAVIC 256	12%	I=204, J=1	5.304	39.104 Mb/s	6 MHz
ITU-B	QAM 64	18%	I=128, J=1	5.056941	26.971 Mb/s	6 MHz
ITU-B	QAM 256	12%	I=128, J=1	5.360537	38.811 Mb/s	6 MHz
ITU-C	DAVIC/DVB 64	13%	I=12, J=17	5.274	29.162 Mb/s	6 MHz

Regulatory Compliance	
UL, CUL, and FCC	Certified

Ordering Information

Table 2. Ordering Information

Gigabit QAM Modulator Chassis	**Part Number**
Gigabit QAM Modulator Model D9479-1 (110 VAC unit)	740450
Gigabit QAM Modulator Model D9479-2 (48 VDC unit)	4000148
Gigabit Ethernet GBIC Interface Options (select one)	**Part Number**
Multi-mode fiber (MMF), 850 nm wavelength, SC-SC connector type	1000839
Single-mode fiber (SMF), 1300 nm wavelength, SC-SC connector type	1000127
Copper, 1000BASE-T, RJ-45 connector type	4009446

Service Provider Video Technology Group
1-800-722-2009 or 678-277-1120
www.scientificatlanta.com

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