

Model D9479 Gigabit QAM Modulator with Dual GbE

With its exciting video transmission technology, the Model D9479 Gigabit QAM Modulator (GQAM) with Dual GbE 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) ports 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 with Dual GbE



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 dual plug-in Small Form-Factor Pluggable (SFP) GbE inputs for redundancy and 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

Redundancy

- Offers a second GbE port as either an automatic or manual switched redundant port
- Provides automatic switching triggered by loss of signal, frame, or MPEG program
- Offers a loss threshold adjustable from 30 ms to 1 minute
- Displays new alarms when switching occurs
- Supports broadcast and SDV redundancy

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 (unswelched)	> 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				
Dual SFP		Dual SFP 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 D9479-12 (110 VAC unit)	4013006
Gigabit QAM Modulator Model D9479-22 (48 VDC unit)	4013007
Gigabit Ethernet SFP Interface Options (select one)	Part Number
Fiber Optic Transceiver 850 nm wavelength, LC connector type	1000770
Fiber Optic Module Kit for 1310 nm wavelength, duplex LC connector types	1003271
1000BASE-T Copper SFP Transceiver	1002217



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

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