Scientific Atlanta
A CISCO COMPANY

Headend Systems

Continuum DVP™ D9600 Advanced Headend Processor
Model D9630 Advanced QAM Modulator

Description

The Model D9630 Advanced QAM Modulator, which is part of the Continuum DVP™ D9600 Advanced Headend Processor family, is a new generation professional QAM Modulator combining the best RF specification with extended transport stream processing and monitoring in a stackable 1 RU device. Blocking services, changing PSI/SI information, monitoring of the incoming signal and much more is now standard in every Model D9630 Adavanced QAM Modulator.

Excellent RF specifications are very important in every cable environment. But many times small changes have to be made to the signal prior to modulation. This can be as simple as inserting a new NIT table or blocking services and components, thus regenerating most of the SI-tables (including EIT table). The Model D9630 Advanced QAM Modulator was designed to combine the high requirements of SI-processing together with high end QAM modulation. Also monitoring of the incoming signal is added. This includes most of the TR 101 290 errors, bit rate measurement on the incoming services and an interpreter PSI/SI viewer.

The RF modulation of the Model D9630 Advanced QAM Modulator supports a full range of variable bit rates, signal bandwidths and QAM constellations, while the output up-converter is fully agile allowing any output frequency.

The Model D9630 Advanced QAM Modulator has a graphical user interface based on Java technology. This creates a user friendly environment and limits the learning curve and training costs. Additionally, the QAM modulation parameters can be easily changed from the front. The unit fits into Scientific-Atlanta's total management solution, ROSA™. This creates a high integration of the Model D9630 Advanced QAM Modulator into the complete digital solution and network. Backup scenarios are supported together with both the ROSA Network Management System as well as the ROSA Element Manager.

Features

- QAM modulation and upconverter
  - Supports a full range of variable data rates, signal bandwidths and constellations
  - Complies with ITU-T J.83 standards, annex A (DVB), B (OpenCable) and C (Japan)
  - Tuneable output RF frequency
  - Front panel RF testpoint (-20 dB)
  - 61 dBmV (RMS) output level
- Advanced Processing
  - PID filtering / re-mapping on each input
  - Blocking of services/components
  - PCR re-stamping
  - Transis loop for easy integration of Scientific-Atlanta's Transis™ Rate Compressor device
- Basic Monitoring
  - Error Monitoring on each input (includes most TR 101 290 errors)
  - Detailed bit rate measurement of incoming services (programs)
  - Built-in PSI/SI viewer
- Extended PSI-SI capabilities
  - Dynamic PSI/SI re-generation
  - PSI/SI play-out carousel
  - Import of all PSI/SI tables
- Management
  - Graphical User Interface based on Java Technology
  - Front panel LCD and buttons for easy set-up and direct alarm status information
  - Full remote control and diagnostics with ROSA management system
  - Backup & automatic level control available with the ROSA management system
- Main and Backup ASI input and loop through
- Ethernet interface for communication with management system, web browser and SI-server

Specifications

Environmental Specifications	
Ambient temperature range Within specs Operating temperature Storage temperature	 +10°C to +40°C / +50°F to +104°F 0°C to +50°C / +32°F to +122°F -20°C to +70°C / -4°F to +158°F
Power supply (nominal)	100 to 240 V AC ± 10 %, 47 to 63 Hz
Power consumption	< 50 W

Mechanical Specifications	
Height	44 mm / 1.74 in. (1 RU)
Width	482 mm / 19 in.
Depth	470 mm / 18.5 in.
Weight	Approx. 5.6 kg / 12.4 lbs

ASI Input Interface	
Number of inputs	1 Main input + 1 Backup input
Connector	BNC-type
Input Impedance	75 Ω
Interface type	Asynchronous Serial Interface (ASI)(according to EN 50083-9)
Packet format	Auto detection: 188 / 204 byte packets (non-channel encoded)
Bit rate	1 to 215 Mbit/s (minimum 1 Mbit/s payload)
Syntax	SPTS or MPTS (according to ISO/IEC 13818)

RF Output Interface	
Number of outputs	1 output + 1 RF test point
Connector	F-type
Output impedance	75 Ω
Return loss	45 to 870 MHz ≥ 14 dB
Frequency range	Channel edges within 45 and 870 MHz
Tuning step	25 kHz
Channel bandwidth (CBW)	6 MHz (ITU-B, ITU-C); 7 or 8 MHz (ITU-A)
Frequency accuracy	± 3 ppm (at room temperature)
Frequency stability	± 3 ppm (within specified temperature range)
Output level (per channel)	50 dBmV to 61 dBmV in steps of 0.5 dB
Output level accuracy	± 1 dB (at room temperature)
Output level stability	± 1 dB (within specified temperature range)
Frequency response	± 0.4 dB in Channel Bandwidth
Integrated phase noise (DSB) and modulated adjacent noise	Exceeds (EURO) DOCSIS specifications
RF mute isolation	> 70 dB
Total discrete spurious inband (fc ± 3 MHz)	< -60 dBc @ max power
Inband spurious and noise (fc ± 3 MHz)	< -55 dBc @ max power
Other channels discrete spurious (50 to 950 MHz)	< -60 dBc @ max power
Out of band CNR	> 75 dBc @ 100 MHz offset

Specifications - continued

QAM Signal	
Channel encoding	Randomisation, Reed-Solomon, Trellis and Interleaving according to ITU-T Annex A, B or C
Symbol rate	5 – 7 MBaud (ITU-A) or 5 – 5.5 MBaud (ITU-B, ITU-C)
QAM constellations	64 & 256 QAM
MER (after equalizer)	≥ 41 dB @ RF
MER (before equalizer)	≥ 34 dB @ RF
BER (pre FEC and @ 256 QAM)	≤ 5.10^{-9} (ITU-A/C pre FEC) ≤ 1.10^{-13} (ITU-B pre FEC / post trellis)
SNR	≥ 50 dB in band

RF Test Point	
Connector	F-type, 75 Ω
RF level	-20 dBc ± 0.5 dB

Ethernet	
Connector	RJ-45
Interface type	10Base-T
Protocols	HTTP, SNMP, IIOP
User interface	Java

Transport Stream Processing
PID filtering / re-mapping capability
Dynamic PSI/SI regeneration
Built-in PSI/SI viewer
Detailed bit rate measurement of incoming services
Error monitoring

Ordering Information

Continuum DVP D9600 Advanced Headend Processor Model D9630 Advanced QAM Modulator	Part Number
Model D9630 Continuum DVP Advanced QAM Modulator	4006240

Americas
1-800-722-2009 or 770-236-6900
www.scientificatlanta.com

Europe & Asia
+32 56 445 445
www.saeurope.com

Part Number 7005287 Rev C
March 2006