



## D5™ QPM 8DX4

### Universal Edge QAM Module



- High Density QAM module for the D5 UEQ platform
- Frequency Range 54 MHz to 1 GHz
- 4 RF ports each support up to 8 contiguous QAM channels
  - 32 QAM channels per module
  - 192 QAM channels per D5 UEQ full-fill chassis
  - Supports ANNEX A/B/C
- Exceeds DOCSIS 3.0 DRFI Specifications
- Simultaneous support of multiple services
  - Within a QAM Carrier
  - Within a bonded QAM channel group
- Arbitrary QAM channel muting allows non-contiguous channel assignments
- FPGA-based architecture allows for future enhancements
- True diagnostic capability of the QAM modulation process via advanced demodulator features which allow program stream analysis of a selected program

The QPM 8DX4 is a high density QAM module used in the ARRIS D5™ Universal Edge QAM (UEQ). It can be used for multiple applications, including Switched Digital Video (SDV), Video On Demand (VOD), Digital Broadcast and DOCSIS Modular CMTS (M-CMTS™). The module has 4 RF ports, each capable of providing up to 8 QAM channels (ITU-T Rec, J.83 Annex A/B/C).

The configuration of each QAM channel on each RF output port is highly flexible, allowing support for multiple services on a single QAM channel, on multiple QAM channels within a bonded group, and on different QAM modules in the D5 UEQ.

As part of the D5 UEQ, the QPM 8DX4 QAM module is easily managed via the extensive, industry leading tools for operations management. Users may select either the integral D5 Web Manager or the D5 Command Line Interpreter (CLI) for interfacing to a single system. The optional D5 Application Manager platform allows a single remote host to manage multiple D5 UEQs. All management options provide complete access control to all elements of the system.

The number of QAM output channels can be set independently for each RF port, ranging from 1 QAM channel per port up to 8 QAM channels per port. The 8DX4 QAM module permits muting of any of the provisioned channels to create non-contiguous channel assignments over a maximum 64 MHz frequency range. The 8DX4 QAM module is compatible with existing D5 UEQ hardware.

#### D5 Overview

The ARRIS D5 Universal Edge QAM (UEQ) is a unique class of IP edge network device that enables delivery of a wide variety of multimedia content in a redundant, modular, and cost-effective package. It supports a complete QAM-Sharing solution with simultaneous delivery of any combination of Video-On-Demand, Digital Broadcast, Switched Digital Video (SDV) Services, and DOCSIS downstream data using the Modular Cable Modem Termination System (M-CMTS) architecture.



# D5™ QPM 8DX4

## Specifications

RF Performance		Environmental	
Center-tuned RF Frequency Range	57 MHz – 999 MHz	Operating Temperature	0 to 50 °C (32 to 122 °F)
Frequency Accuracy (over temperature and time)	11 ppm	Storage Temperature	-40 to 70 °C (-40 to 158 °F)
Minimum RF Frequency Step	62.5 kHz	Relative Humidity (non-condensing)	Up to 95%
Modulation Type	64 and 256 QAM	Physical Dimensions	350 mm x 160 mm x 20 mm (13.78 in x 6.3 in x 0.79 in)
Symbol Rate Offset	± 50 Hz	Weight	1.0 kg (2.2 lbs)
QAM Density per RF Port (Annex A/B/C)	1 to 8 Channel	Typical Power Consumption	55 W
RF Output Power per Channel		Output Connectors	4x ANSI/SCTE "F" type female connectors, 75 ohm (ISO-169-24)
N = 1	49 – 60 dBmV	<b>Compliance when tested in D5™ Universal Edge QAM (UEQ)</b>	
N = 2	45 – 56 dBmV	Safety:	UL 60950-1:2003, CE Certified CAN: CSA-C22.2: 60950-1-03
N = 4	44 – 55 dBmV	EMI:	FCC Part 15, subpart B, class A EN 55022: 1998 EN 61000-3-2: 2000 EN 61000-3-3: 1995 + A1 2001
N = 6	42 – 53 dBmV	ESD:	EN 61000-4-2: 1999
N = 8	41 – 52 dBmV	Immunity:	EN 61000-4-3: 2001 EN 61000-4-4: 2001 EN 61000-4-5: 2001 EN 61000-4-6: 2001
Power Adjustment Range	15 dB in 0.1 dB steps		
Output Power Accuracy	± 0.5 dB		
MER (Unequalized)	> 40 dB		
MER (Equalized)	> 46 dBc		
Phase Noise (double sided)			
1–10KHz	- 35 dBc		
10–50KHz	- 54 dBc		
50KHz–3MHz	- 55 dBc		
Output Return Loss (in channel)	>15 dB		
Broadband Noise Floor			
N = 1	-73 dBc		
N = 2	-70 dBc		
N = 4	-67 dBc		
N = 8	-64 dBc		
Harmonics (irrespective of no. of chs.)	<-63 dBc		
BER (post-FEC 24hr averaging)	0.0E-13		
Group Delay	<25 ns p-p		
Specifications not listed meet or exceed DOCSIS DRFI			

## Ordering Information

Part Number	Description
780274	D5 UEQ Quad Port Module (QPM 8DX4) QAM
780293	D5 UEQ License for QPM 8DX4 QAM - Hex Bonding (6 channels per port – 1 license per QAM module)
780294	D5 UEQ License for QPM 8DX4 QAM - Octal Bonding (8 channels per port – 1 license per QAM module)
780295	D5 UEQ License for QPM 8DX4 QAM - Hex to Octal Bonding Upgrade (+2 channels per port – 1 license per QAM module)

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