

The **QTM-HD-4 (QAM Transcoder Module)** contains four (4) independent transcoders in a single module. Each of these transcoders can accept one (1) QPSK or 8PSK input, and output four (4) QAM in the 54-864 MHz range.

An integrated satellite selector switch allows operators to select any QPSK/8PSK input from up to four (4) different satellites without the need for a separate external multi-switch.

The four (4) RF QAM output channels can be grouped in any 42 MHz-wide span, for example (i) grouped consecutively in a 24 MHz-wide span, or (ii) grouped as two pairs of adjoining RF channels, each 12 MHz-wide, or (iii) provide any other possible combination of 4x 6 MHz-wide channels placed in a 42 MHz-wide span.

The **QTM-HD-4-NPU** functions the same as the **QTM-HD-4**, but with a “Null Packet” feature that allows adding/removing null packets to/from the input stream.

The **QTM-HD-4-NPU-PF** functions the same as the **QTM-HD-4-NPU**, but with a “Program Filtering” feature that allows removal of program streams to fit in a 38.81 Mbps 256 QAM channel.

All **QTM-HD-4** modules can be monitored and controlled via GUI-based web pages from any computer locally or remotely using any standard internet browser.



Features

- Supports QPSK/8PSK inputs (DVB-S, DVB-S2, Turbo FEC)
- Includes an integrated satellite switch that allows operator to select inputs from 4 different satellites
- Supports ITU-T J.83 Annex A and Annex B QAM output (QAM 16, 32, 64, 128, 256)
- Can be deployed with **QTM-HD-PLUS** (Stk# 6242) for applications requiring QAM 512/1024 modulation
- Compact design allows deployment of 4 modules (16 transcoders), and 1 power & control module, in 3RU
- GUI-based menu, including SNMP-based management, provides remote monitoring/control capabilities
- 4x 8 MHz-wide QAM channel optional software is available

Ordering Information

Model	Stock #	Description	QTPCM-4	QTPCM-4 PF	QTRC
QTM-HD-4	6243	QAM Transcoder Module; QPSK/8PSK input and QAM 256 output			
QTM-HD-4-NPU	6223	QAM Transcoder Module with “Null Packet” feature			
QTM-HD-4-NPU-PF	6223 PF	QAM Transcoder Module with “Null Packet” and “Program Filtering” features			
QTPCM-4	6238	QT Power and Control Module (one per chassis)			
QTPCM-4 PF	6238 PF	QT Power and Control Module (required for Stk # 6223 PF)			
QTRC	6233A	Rack Chassis; 3RU (up to 4xQTM-HD and 1xQTPCM-4 modules)			

Specifications

Input

Connector:	4x "F" Female
Standards:	QPSK & 8PSK (DVB-S, DVB-S2, DCII, LDPC/BCH, & Turbo FEC)
Symbol Rate (Variable)	
DVB-S:	Variable; 1-45 MSymbols/sec (Mbaud)
DVB-S2:	Variable; 5-33 MSymbols/sec (Mbaud)
8PSK Turbo:	Variable; 2-30 MSymbols/sec (Mbaud)
Frequency Range:	950-2150 MHz
Frequency Granularity:	1 MHz
Bandwidth:	Variable; ≤36 MHz
Capture Range:	± 5 MHz
Code Rate (Auto Detect)	
DVB-S:	1/2, 2/3, 3/4, 5/6, 7/8, DC II
DVB-S2 (QPSK):	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
DVB-S2 (8PSK):	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Turbo FEC (QPSK):	1/2, 2/3, 3/4, 5/6, 7/8
Turbo FEC (8PSK):	2/3, 3/4, 5/6, 8/9
Forward Error Correction (FEC):	DVB / DigiCiper® II
Input Level:	-65 to -20 dBm
Impedance:	75 Ω
Return Loss:	Greater than 9 dB

Output

Connector:	1x "F" Female (4x RF QAM Ch. Combined)
Modulation:	QAM 16, 32, 64, 128, and 256
Standard:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 864 MHz
Tuning:	CATV Channel Selectable (Ch. 2 to 135)
Channels' Bandwidth:	4x 6 MHz in any 42 MHz-wide span
RF Level:	+40 dBmV ±1 dB (100 dBμV ±1 dB)
RF Level Adj. Range:	+32 to +42 dBmV (1 dB increments)
Frequency Tolerance:	± 0.5 kHz @ 77°F (25° C)
Frequency Stability:	± 5 kHz over 32° to 122° F (0 to 50° C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-95 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-70 dBc (@ +40 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	Greater than 40 dB typical
MER:	Greater than 39 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (W x D x H)	
QTM-HD-4 Module:	3.0 x 10.6 x 5.25 in. (38 x 270 x 134 mm)
QTPCM Module:	4.5 x 10.6 x 5.25 in. (114 x 270 x 134 mm)
QTRC Rack Chassis:	19 x 12.0 x 5.25 in. (483 x 305 x 134 mm)
Power:	105-240 VAC; 50/60 Hz
Power Consumption	
QTM-HD-4 Module:	21 W
Weight	
QTM-HD-4 Module:	1.7 lbs (0.77 kg)
Fully-loaded Rack Chassis:	28 lbs (12.7 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating/Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Indicators	
QTM-HD-4 Module:	Status (Green LED)
QTPCM Module:	Power and Status (Green LED)
Remote Monitoring/Control:	GUI-based Menu via web browser



Related Products

Model	Stock #	Description
QTM-HD-PLUS	6242	QPSK/8PSK-to-QAM 512/1024 Transcoder, eight (8) transcoders in 3RU