QHD4040 Digital Quad Upconverter

High Density; Frequency Agile; 64/256 QAM

The **QHD4040** is a Quad digital upconverter which achieves previously unavailable density and conservation of headend rack space for upconverter intensive applications such as digital video on demand (DVOD) and cable modem service. Advanced design allows a single card to cover a frequency band from 88 to 858 MHz and still maintain a phase noise specification which exceeds the requirements of 64/256 QAM. Remarkably low out of band noise performance and low spurious are achieved through high level mixing, a microwave frequency IF and multiple levels of filtering.

Each chassis with common power supply contains 4 independent frequency agile upconverters in a 1U rack mount configuration. The redundancy features of this product make it suitable for the most demanding applications. Built-in power detectors allow for easy input and output level configuration. The controller module features a remote control interface (with optional SNMP), allowing full control and monitoring of all frequencies and levels. This advanced, cost effective upconverter offers high performance, flexibility and space efficiency.

Features Include:

- Four indepedent digital upconverters in 1U
- High level output; +61 dBmV 88 to 858 MHz
- Front panel selectable output frequency in 12.5 kHz step size
- Digital slope compensation to achieve < ±0.3 dB slope over any channel
- Auto IF ALC automatically corrects for input level changes (non-bursty)
- Out of band noise performance
  -12 dBmV/6 MHz (-15 dBmV/6 MHz typ)
  -11 dBmV/8 MHz (8 MHz option)
  -30 dBmV/6 MHz > twice RF frequency typical
- Excellent in-band noise performance
- User defined soft alarms for IF and RF levels can be enabled from remote control
- RF ALC allows frequency to be adjusted without affecting the RF level
- RF output mutes when changing output configuration
- High reliability, state-of-the-art design using microstrip MMIC and surface mount technology
- Conservative component derating and 100% burn in help ensure reliable operation
- Low power consumption
- All local oscillators are frequency synthesized and locked to a common internal high stability reference
- Local control via Vacuum Fluorescent Display and 4 soft touch push buttons
- Remote control via RS232/RS485/Terminal mode or optional SNMP
- FLASH memory for easy software updates
- Front panel displays IF and RF power levels
- International internal autosensing power supply (100 to 240 VAC; 50 to 60 Hz); -48 VDC power supply option available
- High reliability fans ensure cool operation for long product life
- 1-to-1 Redundancy (50 ms switching)

VCom Inc.

(formerly WaveCom Electronics Inc.)

800 883 8839

www.megahz.com

sales@megahz.com

Distributed by:

Mega Hertz

br_qhd4040_02 (July 2003)

SPECIFICATIONS — VCOM QHD4040 DIGITAL QUAD UPCONVERTER

HIGH DENSITY; FREQUENCY AGILE; 64/256 QAM

IF INPUT

IF Frequency (center of the band)	44.00 MHZ
Bandwidth	Passband 6 MHz (8 MHz - option 1P1)
Input Level	+25 to +35 dBmV (total power)
Impedance	75 ohm
Return Loss	16 dB typical
Connector	F type (female)
IF Detector Accuracy	1 dB typical
IF attenuator Step Size	0.1 dB typical
IF ALC (for carrier/digital input)	enable/disable
IF Monitor	-20 dBc typical

RF OUTPUT

Frequency Range	88 to 858 MHz (band center)
Frequency Step Size	12.5 kHz
Frequency Accuracy	2 ppm
Frequency Response (any 5 MHz band)	± 0.25 dB
Frequency Response (any 7 MHz band)	± 0.4 dB (for wide band options)
Group Delay (any 5 MHz band)	15 nsec p-p max (8 nsec typical)
Output Level	+61 dBmV max.
Output Level Step Size	0.1 dB typical
RF Detector Accuracy	±1.0 dB typical
Gain Control Range	+45 to +61 dBmV
Impedance	75 ohm
Return Loss (inband)	16 dB
Connector	F type
RF Monitor Point (calibrated)	-20 dBc ± 0.5 dB
Spurious (50 MHz to 900 MHz)	-60 dBc (70 dBc typical)
Phase Noise	
1 to 10 KHz (double side band noise power)	-36 dBc
10 to 50 KHz (double side band noise power)	-54 dBc
50 KHz to 3 MHz (double side band noise power)	-53 dBc
10 KHz Offset (SSB)	-95 dBc/Hz @ 10 kHz
Broadband Noise	
(average noise all Channels outside ± 18 MHz)	-12 dBmV/6 MHz (-15 dBmV/6 MHz typical) -11 dBmV/8 MHz (option 1P1)
Modulated Adjacent Noise (6 MHz channel Passband)	
+/- 3 to 3.75 MHz	-58 dBc min
+/- 3.75 to 9 MHz	-62 dBc min
+/- 9 to 15 MHz	-65 dBc min
Modulated Adjacent Noise (8 MHz channel Passband- option 1P1)	
+/- 4 to 5 MHz	-58 dBc min
+/- 5 to 12 MHz	-61 dBc min
+/- 12 to 20 MHz	-64 dBc min
Carrier Mute	Automatic upon frequency change
1-to-1 Redundancy switching speed	<50 ms

GENERAL

Remote Control Serial Interface	RS232, RS485, or Terminal Mode (software selectable)
Option 2S1	RS232, Terminal, or SNMP over IEEE802.3 10-Base-T Ethernet
Connector	Dual RJ45
Power Requirement Dual Redundant	100 to 240 VAC, 50 to 60 Hz (Optional -48 VDC)
Power Consumption	80 Watts max.
Operating Temp	10 to 40°C (50 to 104°F)
Mounting	Standard 19" (48.3 cm), 1U (1.75") rack space
Dimensions	19" (w) x 14.9" (d) x 1.75" (h) (48.3 x 37.85 x 4.45cm)
Weight	11.5 lbs. (6.3 kg)
F Connectors	ANSI SP 406-1998

OPTIONS

2R3 - Redundant Power Supply (100 to 240 VAC)
2R4 - Redundant Power Supply (-48 VDC)
2S1 - SNMP Proxy Agent & Interface
6S2 - Internal -48 VDC Power Supply

Mega Hertz
800 883 8839
www.megahz.com
sales@megahz.com

Specifications subject to change without notice. - Printed in Canada.