Q2

flexible encoding modulating board

24 channels tuner and HD content to RF Encoder Modulator

DVB C CABLE DVB T2 ISDB-T ATSC DTMB

Q2 is a flexible encoding&modulating board combination of encoder modulator and transmodulator, this HDMI/RF to RF Modulators headend units are an ideal product to create your own digital TV channels over existing coax. The channel sources from any RF tuner and HDMI devices can be easily distributed to all your televisions quickly and efficiently, and the best quality HD picture allows you to broadcast any HDMI/RF device into your RF modulated channel at the lowest cost per channel.
Q2 is an all-in-one device integrated encoding (MPEG4/AVC H.264), multiplexing and modulation functions in one standard 1 Ru case. It has total 6 module, each module can support 4 tuner or 4 HDMI input, total up to 8 RF output. In a word, it can convert HDMI and RF signals input to RF out. It is also equipped with ASI ports to input and output, and IP port to output TS. Its flexible configuration is making it extremely scalable, reliable with high performance.
Q2 is an efficient, low-cost digital TV headend device, which can be used in public place such as metro, market hall, theatre, hotels, resorts for advertising. It also can be used for monitoring, training and educating in company, campus, hospital.

Key Features

Distribute 8/12/16/20/24 FTA Tuners or HD content over RF to an unlimited number of TVs
flexible encoding&modulating board combination
Selectable DVB-S2, ISDB-T, DVB-C, DVB-T/T2, DTMB, ATSC free to air Tuners inputs
Optional DVB-C (QAM), DVB-T (COFDM), ATSC-T, ISDB-T, DTMB Modulation, 8*Carrier RF Out
In modulation Mode, support 128*IP input
Two separate ASI input for External TS Multiplexing
Simulaneously 1*MPTS and N*SPTS over UDP/RTP IP out
4 separate multiplexing and Up-converter modulating adjacent carrier out
Selectable the Value of PCR PID same as Video PID
LCN (Logical Channel Number) support
PSI/SI editing & inserting
PID Remapping & Filtering
VBR and CBR mode
Selectable LOGO,QR code,OSD insertion for every, All or Each module of local channel
Support PCR correct and PCR interval adjusting
Superior Shoulders and Excellent modulation quality MER
Easy-to-Use System Management via Web

Application

- Advertising, monitoring, training and educating
- Upgrade all your analog Head-ends to digital TV Solution
- Enterprise, Hotel, campus, hospital, Public Place
- Low cost Digital TV distribution

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TECHNICAL SPECIFICATIONS

FTA Tuners Inputs Part

Numbers of Boards	4 Tuners ports per module Up to 6 Modules in Back panel
Numbers of Ports	8; 12; 16; 20; 24 Channels
Tuner Types	DVB-S2, ISDB-T, DVB-C, DVB-T/T2, DTMB, ATSC
Connecter	F-female type

DVB-S/S2 Tuners

Input Frequency	950-2150Mhz
Symbol rate	2~45Mbauds(DVB-S QPSK) 1~45Mbauds(DVB-S2 QPSK) 2~30Mbauds(DVB-S2 8PSK)
Signal Strength	- 65 ~ -25dBm
FEC Demodulation	1/2, 2/3, 3/4, 5/6, 7/8(DVB-S QPSK) 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 (DVB-2 QPSK/8PSK)
Roll Off	0.20; 0.25; 0.35(Only DVB-S)
Demodulation Mode	QPSK, 8PSK(Only DVB-S2)
LNB Polarity Selection Vol	0, 13V, 18V Selectable
LNB Band Selection Tone	0/22Khz Selectable
Input Impedance	75 Ω
FEC (Code Rate)	1/2, 2/3, 3/4, 5/6, 7/8

ATSC Tuners

Frequency range	50 – 860 MHz
Key reference specification	ATSC A/53
Input level	-34 to +40 dBmV
Constellation	8-VSB
Bandwidth	6Mhz

DVB-C Tuner Input

Connector Type	8*F type female 75Ω for Input
Input Frequency Range	51 ~ 862MHz
Input Level	51 ~ 75dBμV
Symbol Rate	1 ~ 7MBaud (ITU J.83 Annex A, B, C)
Constellation	16QAM, 32QAM, 64QAM, 128QAM,256QAM
Bandwidth	6MHz, 7MHz, 8MHz
Input Return Loss	7dB (typ.)

DTMB Tuner Input

Connector Type	8*F type female 75Ω for Input
Input Frequency Range	46.5 ~ 866MHz
Input Level	-87 ~ -29dBm
Symbol Rate	7.56MBaud
Bandwidth	6MHz, 7MHz, 8MHz
Constellation	4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM
Guard Interval	PN420, PN595, PN945
Roll-off Factor	0.05
Interleaving Depth	240, 720
FEC Code Rate	0.4, 0.6, 0.8

DVB-T/T2 Tuners

Frequency Range	30MHz-1000Mhz
Bandwidth	6Mhz, 7Mhz, 8Mhz
Level	-87 ~ -20dBm
Constellation	QPSK, 16QAM, 64QAM
FEC Demodulation	DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8, DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
Guard Interval	DVB-T: 1/4, 1/8, 1/16, 1/32, DVB-T2:1/4, 5/32, 1/8, 5/64, 1/16, 1/32, 1/64, 1/128

ISDB-T Tuners

Input frequency range	30 ~ 900MHz
Bandwidth	6MHz
Constellation	DQPSK, QPSK, 16QAM, 64QAM
Interleave	0, 4, 8, 16
Guard Interval	1/32, 1/16, 1/8, 1/4
Transmission Mode	2K, 4K, 8K (FFT)
FEC (Code Rate)	1/2, 2/3, 3/4, 5/6, 7/8

Encoder Inputs Part

HDMI inputs

Numbers of Boards	4 HDMI ports per module Up to 6 Modules in Back panel
Numbers of Ports NOTE: Up to 24 channels	8; 12; 16; 20; 24 Channels in FTA tuner / encoder inputs

DVB-ASI inputs

Connector	2*BNC female, 75Ω
Signal Level	200-800mVp-p
Packet Length	188 bytes
Maximum bit-rate per port	≤100Mbps
Number of Input Ports	Dual separate ASI ports

Video Processing

Input Resolution	1920×1080@60P, 1920×1080@60i, 1920×1080@50P, 1920×1080@50i, 1920x1080@59.94P, 1920x1080@59.94i, 1920×1080@30P,1280×720@60P, 1280×720@50P 720×576@50i,720×480@60i
Output Resolution	19201080P@60P, 1920×1080@30P, 1920×1080@50P, 1920×1080@25P 1920x1080@59.94P,1920x1080@29.97P 128

0x720@60P, 1280x720@50P
720×576@25P,720×480@30P

Encoding	MPEG-4 AVC/H.264
Bit-rate	1Mbps~13Mbps
Rate Control	CBR,VBR
GOP Structure	IPPPP (P Frame adjustment, without B Frame)

Select to configure Logo, Caption and QR Coder in any Position of Video Picture

Audio Processing

Encoding	MPEG-1 Layer 2
Sampling rate	48KHz
Resolution	24-bit
Bit-rate	64kbps, 128Kbps, 192kbps, 224kbps, 256kbps, 320kbps, 384kbps
Audio Gain	0-255

IP input (only with tuner input)

Modulation output Model	128 IP inputs

Modulation Outputs Part

Connector	1 Port, F-Type, 75
Output Return Loss	14 dB
MER	≥40dB
RF output level	-30 ~ -10dbm,0.1db step
RF frequency	47-860Mhz, 1KHz step
Numbers of RF Channel	8* DVB-C, DVB-T, ATSC, DTMB RF out 6* ISDB-T RF out
Modulation Mode	DVB-C, DVB-T, ATSC, ISDB-T, DTMB

DVB-T Standard EN300744

FFT mode	2K, 8K
Bandwidth	6M, 7M, 8M
Constellation	QPSK, 16QAM, 64QAM
Guard Interval	1/4, 1/8, 1/16, 1/32
FEC	1/2, 2/3, 3/4, 5/6, 7/8

DVB-C Standard **J83.A (DVB-C, J83.B, J83.C)**

Carrier	ANNEX A	Annex B		Annex C
Constellation (QAM)	16,32,64,128, 256	**64**	**256**	**64/256**
Bandwidth (Mhz)	**8**	**6**	**6**	**6**
Symbol Rate (Mbaud)	**5-7**	**5.057**	**5.361**	**4.2-5.3**

SDB-

T Standard ARIB STD-B31

Constellation	DQPSK, QPSK, 16QAM, 64QAM
Guard Interval	1/32, 1/16, 1/8, 1/4
Transmission Mode	2K, 4K, 8K
Code rate	1/2, 3/4, 5/6, 7/8
BandWidth	6Mhz

ATSC Standard ATSC A/53

Constellation	8 VSB

DTMB Standard GB20600-2006

Constellation	4QAM, 16QAM, 32QAM, 64QAM
Code rate	0.4, 0.6, 0.8
Guard Interval	420, 595, 945

Stream Output

DVB-ASI	2 Separate ASI (Select from modulation Channels or MPTS channel) 75Ω, BNC, 188Bytes MPEG-2 TS over DVB-ASI (EN 50083-9)
RJ45 Port	100/1000M GbE Port Simultaneous output with N*SPTS (from HDMI channels) and 1*MPTS (modulation or MPTS channels) MPEG-2 TS over UDP, unicast, and multicast streaming MPEG-2 TS over RTP/RTSP Configurable packet size(2-7)x188Bytes Filter Null Packet
Total Bitrate (Should be More than Encoding bitrate)	1-200Mbps

Multiplexing

Maximum EIT Remapping 180 input per channel

EIT remapping by automatically or manually

PSI/SI	SDT/PMT/TOT/PAT/BAT/CAT/TDT/NIT Insert Accurate PCR adjusting
Max Numbers	4 mux for RF and 1 Mux for 4*MPTS (4*MPTS channels can Separate MUX) IP out in Modulation 4 Mpts IP out In Tuners gateway

System

Local interface	LCD + control buttons
Remote management	Web/NMS
NMS interface	RJ45, 100M
Language	English

Environment

Voltage range	100 to 120/200 to 240V AC ±10%; 50/60Hz
Power consumption	60W
Operation Temperature	0 ~ 45℃
Storage Temperature	-20 ~ 80℃
Dimensions	482mm (L) * 380mm (W) * 44mm (H)
Weight	4.5 kg

