

DMM-2410EC / 2411EC 4-way Encoder/Transcoder Series

DMM-2410EC/2411EC are a series of high density H.264 HD/SD & MPEG-2 SD real time encoders/Transcoders. This blade type design integrates 4 independent encoders/transcoders, 1 reMultiplexer, 1 ASI_in, 2 ASI_out, and 1 Gigabit (GbE) TS/IP port. New MPTS could be generated with the built-in reMultiplexer from any combination of services among ASI_in, TS/IP_in and the local encoders. HDMI, HD-SDI and CVBS inputs are available as factory hardware options.

All models provide three TS/IP operation modes. The first is "Full Duplex", which allows one MPTS or SPTS inputted to make up a new MPTS with local encoders, then sends the new one over IP & ASI_out. In the second mode "Multiple output" which delivers up to five streams over IP. There are four un-stuffed SPTS (lower bit rate but less PCR accurate than normal SPTS, from local encoders) and one MPTS (from internal reMultiplexer) over the IP with different Unicast or Multicast IP addresses. In the third mode "Multiple Full Duplex", which allows 4SPTS input and 4SPTS&1MPTS output.

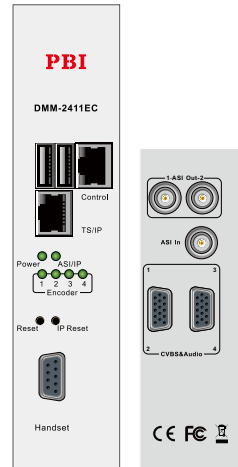
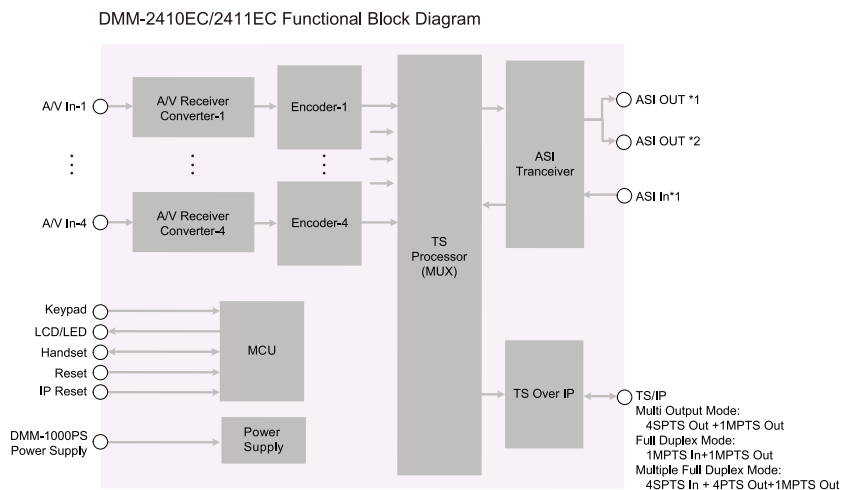
All models support transcoding function (see below). They accept an MPTS and transcode up to 4 TS inside and the final output is formed as an MPTS and/or 4 un-stuffed SPTS.

DMM-2410EC/2411EC series modules can be fitted into DMM-1000MF (19" x 4RU, 8 slots, and Dual power supplies) or DMM-200MF (19"x 1RU, 2 slots, single power supply) chassis.

Main features

- Compliant with H.264/AVC Baseline, Main & High Profile @ L4.0 or less & MPEG-2 MP@ML
- 4 independent AV inputs (SDI, HDMI, CVBS, note: see Model List)
- Independent Encoding/Transcoding mode control
- Internal reMultiplexer, new MPTS is made up from ASI_in, TS/IP_in & Local Encoders
- MPTS remultiplexed and 4 local un-stuffed SPTS available over IP
- Video Input Resolution: 1080i, 720p, 576i, 480i (note: CVBS models support SD only, see Model List)
- Minimum Video Bit Rate 300Kb/s (Standard PAL or NTSC SD video, while total bit rate ~ 700Kb/s)
- Independent Vertical & Horizontal pixel scale
- Transcoding from MPEG2 to H.264/AVC & vice versa
- VBR & CBR mode for encoding/transcoding
- Audio coding: MPEG1 Layer II, MPEG2/4 AAC-LC HE-AAC (note: see Model List)
- SNMP & HTTP WEB for monitoring & control
- Fit to DMM-1000MF and DMM-200 Chassis

Block Diagram



Specification

Video Input & compression Coding	
Video Input Interfaces	4x HDMI, 4x SDI, or 4x CVBS (note: see Model List)
Coding Profile & Level	H.264/AVC BLP, MP, HP @ L4.0 or less, MPEG-2 MP@ML (note: see Model List)
Sampling Format	4:2:0, 10-bit, YCbCr
Compression Bit Rate	300K~20Mbps
Video Resolution & Recommend Compression Bit Rate H.264	1080i (1920 × 1080) @25Hz, 29.97Hz: SMPTE274M: 1~13Mb/s
	720p (1280 × 720) @50Hz, 59.94Hz: SMPTE296M: 1~13Mb/s
	480i (720 × 480) @29.97Hz: SMPTE656M: 600K~8Mb/s
	576i (720 × 576) @25Hz: SMPTE656M: 600K~8Mb/s
	480i (720 × 480) @29.97Hz: SMPTE656M: 3.5~8Mb/s
Video Resolution & Recommend Compression Bit Rate MPEG 2	576i (720 × 576) @25Hz: SMPTE656M: 3.5~8Mb/s
	576i (720 × 576) @29.97Hz: SMPTE656M: 3.5~8Mb/s
Video Resolution Down Scaling	Vertical & Horizontal adjustable respectively (frame rate is not scalable)
Aspect Ratio	4:3, 16:9 Selectable
Audio Input & Compression Coding	
Audio Input Interfaces	HDMI/SDI Embedded or Analog (note: see Model List)
Coding Standard	MPEG1 Layer II MPEG-2/4 AAC-LC/HE-AAC(V1, V2) (available on DMM-2410EC series)
Sampling Rate	48KHz
Recommend Compression Bit Rate	MPEG1 Layer II :32~192Kbps(mono), 64~384Kbps(stereo),
	MPEG-2/4 AAC-LC:24~256Kbps(mono), 48~512Kbps(stereo)
	MPEG2/4 HE-AAC(V1,V2) :16~128Kbps (mono), 32~256Kbps(stereo)
Transcoding	
Transcoding Mode	H.264 to MPEG-2, H.264 to H.264, MPEG-2 to MPEG-2, MPEG-2 to H.264 MPTS, MPEG2 MP@ML MP@HL, MPTS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not FMO, ASO & RS of Baseline)
Input Standard	MPTS and/or un-stuffed TS, MPEG2 MP@ML
Output Standard	MPTS and/or un-stuffed TS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not include FMO, ASO & RS of Baseline)

DVB-ASI Input	
Input Interface	BNC Female, 75Ω
Maximum Bit Rate	100 Mb/s
Data Type	Byte
Packet Length	188/204 Bytes
Signal Level	200 ~ 880mVp-p
DVB-ASI Output	
Input Interface	BNC Female, 75Ω
Bit Rate	100Mb/s
Data Type	Byte
Packet Length	188/204 Bytes
Signal Level	800 ± 80mV
TS/IP Gigabit Ethernet (note: see IP Model List)	
Standard	IEEE 802.3, 10/100/1000 Base-T 80Mb/s (note: Full Duplex mode) 200Mb/s (note: Multiple Output mode 4SPTS Output+1MPTS Output)
Maximum Effective Bit Rate	200Mb/s (note: Multiple Full Duplex mode 4SPTS Input+ 4SPTS Output+1MPTS Output)
Encapsulation	SPTS or MPTS
Protocol	UDP, RTP, ICMP, ARP, IGMPv2
Rear Panel options	
ASI In	1 x BNC Female, 75Ω
SDI In	4 x BNC Female, 75Ω (DMM-2410EC-S or DMM-2411EC-S, see Model List)
HDMI In	4 x HDMI Socket, 75Ω (DMM-2410EC-H or DMM-2411EC-H, see Model List)
CVBS In & Analog Audio In	2 x D-Sub15 (with D-Sub 15 to BNC female adapter cabling, total 4 sets of inputs, see Model List)
ASI Out	2 x BNC Female, 75Ω (1 Backup)
Front Panel	
Control	1x RJ-45, 10/100 Base-T
TS/IP	1x RJ-45, 10/100/1000 Base-T
LED	1x Power, 4x Encoder Status, 1x ASI/IP Status
IP Reset	Press for 5 second or more to return the default IP address of control port
Reset	Local reset
Others	
Power	DC 3.3V/5V/12V, from DMM-1000 (8-slot) or DMM-200 (2-slot)
Operating Temperature	0 ~ 40℃
Storage Temperature	-10 ~ 60℃
Operating Humidity	10 ~ 90% (Non-condensed)

Order Information

Model		DMM-2410EC-S	DMM-2411EC-S	DMM-2410EC-H	DMM-2411EC-H	DMM-2410EC-C	DMM-2411EC-C
Interface							
Input	HD/SD SDI with Embedded Audio	x4	x4				
	HDMI with Embedded Audio			x4	x4		
	CVBS & Analog Audio					x4	x4
TS Input	ASI	•	•	•	•	•	•
	TS/IP(GbE)	•	•	•	•	•	•
TS Output	ASI (1+1)	•	•	•	•	•	•
	TS/IP(GbE)	•	•	•	•	•	•
Audio AAC-LC /HE-AAC		•		•		•	