

## HPS842A MPEG2 HD/MPEG4 HD Encoder Modulator

(4 HDMI to 4 DVB-C)



# Low Delay

### Product Overview

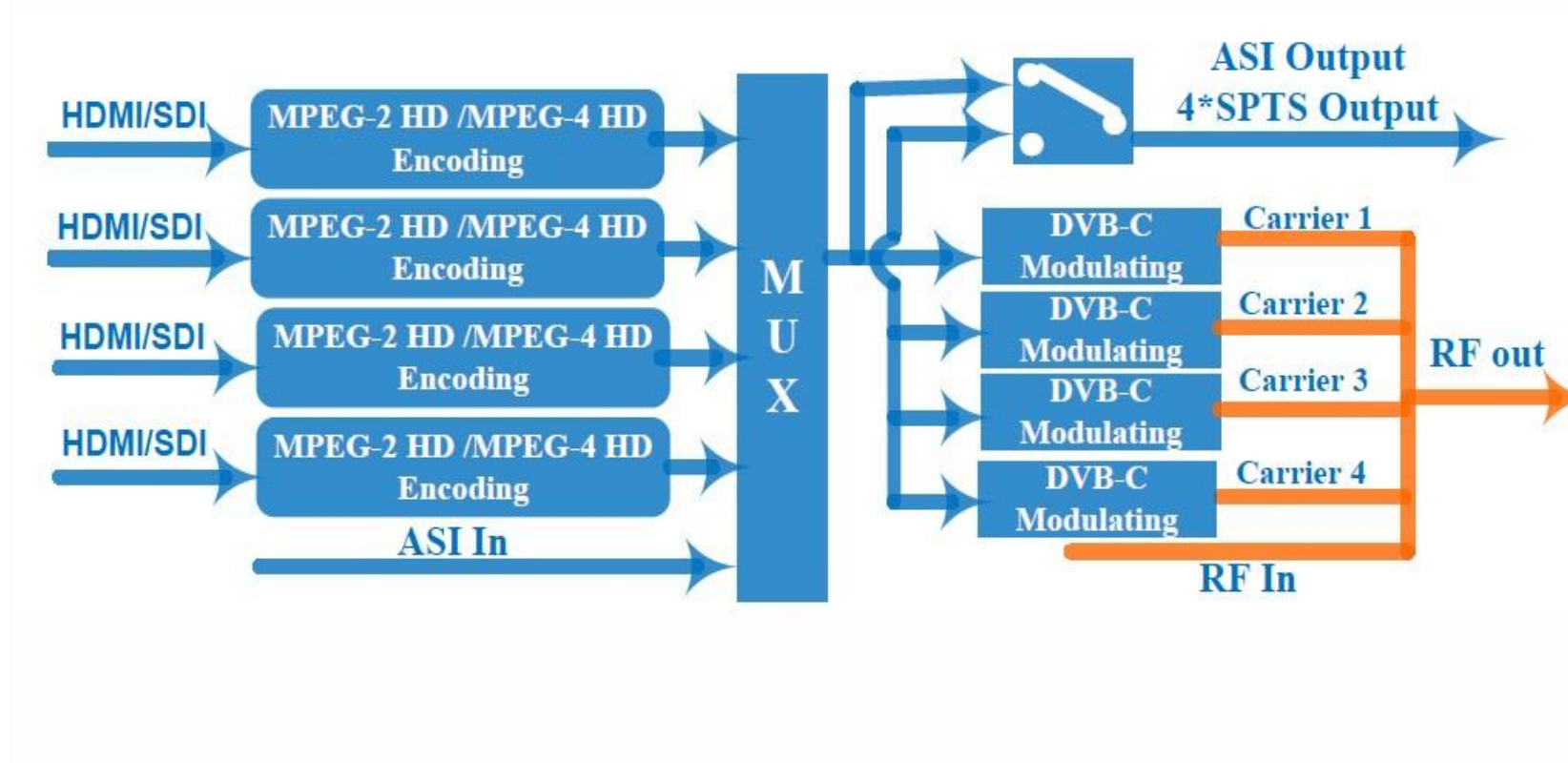
HPS842A series products are HIPRO's new breakthrough all-in-one devices which integrate encoding (MPEG-2 HD/SD, MPEG-4/AVC H.264 HD/SD) and modulating to convert V/A signals into DVB-C RF output. It has equipped with 4 HDMI (4 SDI optional) channels input and 1 ASI input and output with 2 ASI ports and 1 UDP IP (4\*SPTS) port.

Delay problem has been greatly reduced to achieve an extremely low value from the encoding progress to the decoding terminals. It adopts inner drawer-type structural design which greatly facilitates the change of encoding modules (HDMI/SDI /...) as needed. The signals source could be from satellite receivers, closed-circuit television cameras, Blue-ray players, and antenna etc. Its output signals are to be received by DVB-C TVs or STBs and etc.

## Key Features

- \*MPEG2 & MPEG4 AVC/H.264 HD/SD encoding
- \*Up to 1920\*1080@50P/60P supported (MPEG4 AVC/H.264)
- \*Up to 1920\*1080@50I/60I supported (MPEG2 HD)
- \*4\* HDMI/SDI input
- \*1\*ASI input for re-mux; 1\*RF input for mix
- \*Simultaneously encoding each channel more than 10Mbps
- \*4\* DVB-C RF out (4 carriers combined output)
- \*Support 4 \* SPTS output
- \* **Extremely low delay (optional)**
- \* LCN support (Logical Channel Number)
- \* Excellent modulation quality MER≥42dB
- \* RF Frequency range 30Mhz~960Mhz
- \* LCD display, Remote control and firmware
- \* Web NMS management; Updates via web

## Principle Chart



## Specifications

### Encoding section

#### Video

Encoding	MPEG2, MPEG4 AVC/H.264
Input	HDMI*4 (or SDI*4)
Resolution	1920*1080_60P, 1920*1080_50P, (-for MPEG4/H.264 only) 1920*1080_60i, 1920*1080_50i, 1280*720_60p, 1280*720_50P 720*480_60i, 720*576_50i

#### Audio

encoding	MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC
Sample rate	48KHz
Bit rate	64kbps, 96kbps, 128kbps, 192kbps, 256kbps, 320kbps

### DVB-C Modulator Section

Standard	J.83A , J.83B, J.83C
MER	≥42dB
RF frequency	30~960MHz, 1KHz step
RF output level	-30~ -10dbm(81~97 dbμV), 0.1db step
<b>J.83A</b>	
Constellation	16/32/64/128/256QAM
Symbol rate	5.000~9.000Msps adjustable
bandwidth	8M
<b>J.83B</b>	

Constellation	64QAM/ 256QAM
bandwidth	6M
<b>J.83C</b>	
Constellation	64QAM/ 256QAM
bandwidth	6M

### System

Local interface	LCD + control buttons
Remote management	Web NMS
output	ASI out (BNC type); 4*SPTS out (RJ45, 100M)
NMS interface	RJ45, 100M
Language	English

### General

Power supply	AC 100V~240V
Dimensions	482*400*44mm
Weight	4.5 kgs
Operation temperature	0~45°C

## Why do we need 4 x DVB-C carrier output in one device?

**Firstly, it is to guarantee the sound picture quality of HD programs.**

As we all know, to guarantee the picture quality of 1920x1080@50I/60I resolution HD program, the video bit-rate may exceed 10Mbps and even reach up to 15Mbps. However,

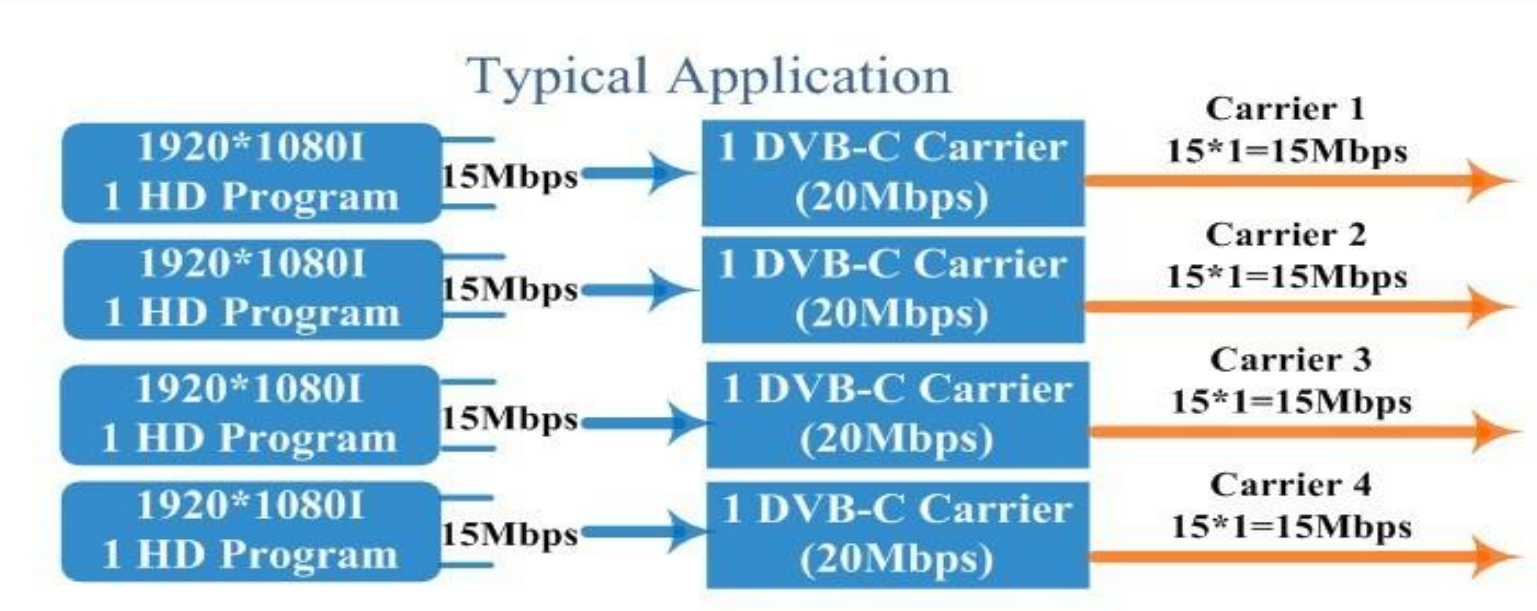
when the modulating constellation is 64QAM, the maximum possible bit-rate output for single DVB-C carrier is only around 20Mbps.

$15\text{Mbps} \times 4 = 60\text{Mbps} > 20\text{Mbps}$ .

It means the single DVB-C carrier simply can't carry the 4 channels 1080i HD program if the average bit-rate exceeds 10Mbps.

That's why we design 4\*DVB-C carrier modulation board which quadruples the maximum possible bit-rate bandwidth up to 80Mbps and above when 64QAM constellation is used. This rightly makes it reliably carry 4 channels MPEG2 HD programs output simultaneously.

Below brief chart will help to more clearly illustrate the working principle.



**Secondly, it is cost-saving.**

Its high integration allows users to transmit more programs with fewer devices. It undoubtedly saves the cost for you and me.

**Internal Test Report of Delay**  
**The values cover the progress from Encoding → Decoding**

Decoding Terminal	Encoding Details					Average Delay (ms)
	Resolution	Encoding Bit Rate	DTS Mode	Single Source Interface	Encoding Type	
DVB-C HD STB	1080i@50	14M	DTS=1	HDMI	mpeg2	170
					H.264	347.5
				SDI	mpeg2	227.5
			DTS=40	HDMI	H.264	367.5
					mpeg2	222.5
				SDI	mpeg2	240
H.264	397.5					

DVB-C HD STB	720p@50	14M	DTS=1	HDMI	mpeg2	85.75
					H.264	237.5
				SDI	mpeg2	127.5
			DTS=40	HDMI	H.264	295
					mpeg2	182.5
				SDI	mpeg2	167.5
H.264	325					

DVB-C HD STB	576i@50	14M	DTS=1	HDMI	mpeg2	310
					H.264	600
				SDI	mpeg2	330
			DTS=40	HDMI	H.264	620
					mpeg2	270
				SDI	mpeg2	280
H.264	620					

