

## INGRON7204EM Four-Channel CVBS to RF MPEG-2 SD Encoder Modulator



### Features

- Integrated with video/audio encoding and modulation modules in one unit
- Video compression: MPEG-2 SD MP@ML(4:2:0)
- Standard of modulation in DVB-C / DVB-T / ATSC-T / ISDB-T/Tb mode
- Additional ASI input available for multiplexing with local input 4 channels
- Accept 4-channel of CVBS signals
- ASI and IP(100M, UDP) output available
- LCN, PID and PSI/SI editing supported
- Easy-operation by LCD and keyboard on front panel
- Network upgrading by NMS and http web network management supported

### Specifications

#### Video Compression

Video Compression	MPEG-2 SD, MP@ML(4:2:0)
Video Input	CVBS; Tuner/SDI/YPbPr optional
Resolution	(PAL) 720*576_60i; (NTSC) 720*480_50i

#### Audio Compression

Audio Compression	MPEG-1 Layer II
Audio Input	Unbalanced L/R
Sample Rate	48 KHz
Bit Rate	64, 96, 128, 192, 256, 320 Kbps

#### Input

Video Input	4*CVBS 2*SDI/2*Tuner/1*YPbPr optional	
Audio Input	4*unbalance L/R 2*SDI optional	
ASI Input	Number	1*ASI
	Connector Type	BNC interface, 75Ω
Tuner Input	1*Tuner, BNC interface, 75Ω DVB-S/DVB-S2/DTMB tuner in compatible, for mixing	

#### WiFi Module(optional)

Protocol of Mobile Receiver	DLNA, Airplay
Operation Mode	802.11A/B/G/N
Frequency Range	2.4000 ~ 2.4835 GHz 5.150 ~ 5.825 GHz

Transport Speed	802.11A	6, 9, 12, 24, 36, 48, 54 Mbps
	802.11B	1, 2, 5.5, 11 Mbps
	802.11G	6, 9, 12, 24, 36, 48, 54 Mbps
	802.11N (20 MHz)	MCS0-15, up to 144 Mbps
	802.11N (40 MHz)	MCS0-15, up to 300 Mbps
WIFI Output Level	2.4 GHz	802.11b: 16 ± 1.5 dBm
		802.11g: 14 ± 1.5 dBm
		802.11n(20MHz): 13 ± 1.5 dBm
		802.11n(40MHz): 13 ± 1.5dBm
	5 GHz	802.11a: 14 ± 1.5 dBm
		802.11n(20/40MHz): 12 ± 1.5 dBm
Antenna	2*bilateral antenna	

Modulation(Single-Option)

DVB-C Mode	Standard	J.83A, J.83B, J.83C
	Constellation & Bandwidth	(J.83A) 16, 32, 64, 128, 256 QAM / 8M; (J.83B) 64, 256 QAM / 6M; (J.83C) 64, 256 QAM / 6M
	Frequency Range	30 ~ 960 MHz, by 1 KHz stepping
	MER	≥42 dB
	Output Level	-30 ~ -10 dBm(77~97dbμV), by 1 dB stepping
	Symbol Rate	(J.83A) 5 ~ 7 MSymbol/s; (J.83B) fixed; (J.83C) fixed
	Out-of-Band Rejection	55 dB
	RF Out	1*DVB-C frequency or 4*DVB-C adjacent frequencies
DVB-T Mode	Standard	DVB-T (EN300 744, EN304 744, COFDM)
	Constellation	QPSK, 16QAM, 64QAM
	Bandwidth	6M, 7M, 8M
	FFT	2K, 8K
	Guard Interval	1/32, 1/16, 1/8, 1/4
	FEC	1/2, 2/3, 3/4, 5/6, 7/8
	MER	≥42 dB
	Frequency Range	30 ~ 960 MHz, in 1 KHz stepping
	Output Level	-30 ~ -10 dBm(77~97 dbμV), by 1 dB stepping
RF Out	1*DVB-T frequency or 2*DVB-T adjacent frequencies	
ATSC Mode	Standard	ATSC A/53
	Constellation	8VSB
	Frequency Range	30 ~ 960 MHz, in 1 KHz stepping
	Output Level	-26 ~ -10 dBm(81~97 dbμV), by 1 dB stepping
	MER	≥40 dB
	Tuner Out	1*8VSB or 2*8VBS adjacent frequencies
ISDB-T Mode	Standard	ARIB STD-B31
	Constellation	DQPSK, QPSK, 16QAM, 64QAM
	Bandwidth	6M
	Frequency Range	30 ~ 960 MHz, by 1 KHz stepping
	Output Level	-26 ~ -10 dBm(77~97 dbμV), by 1 dB stepping
	MER	≥42 dB
	Outer Coding	RS (204, 188)

Guard Interval	1/32, 1/16, 1/8, 1/4
Convolutional Coding	1/2, 2/3, 3/4, 5/6, 7/8
FFT	2K, 4K, 8K
RF Out	1*ISDB-T frequency

**Output**

RF Output	Number	1*RF
	Connector Type	75Ω, F interface
ASI Output	Number	1*ASI+1*ASI(backup)
	Standard	EN50083-9
	Output Loss	>10 dB
	Connector Type	75Ω, BNC interface
IP Output	Number	1*TS over IP
	Protocol	UDP
	Mode	unicast or multicast
	Output	1*MPTS or multiple MPTS(same as RF out)
	Connector Type	RJ45, 10/100M
		Support empty packet filtering

**Management**

Remote Control	by NMS
Local Control	LCD and keyboard on front panel
Upgrading	by Ethernet interface
Language	English

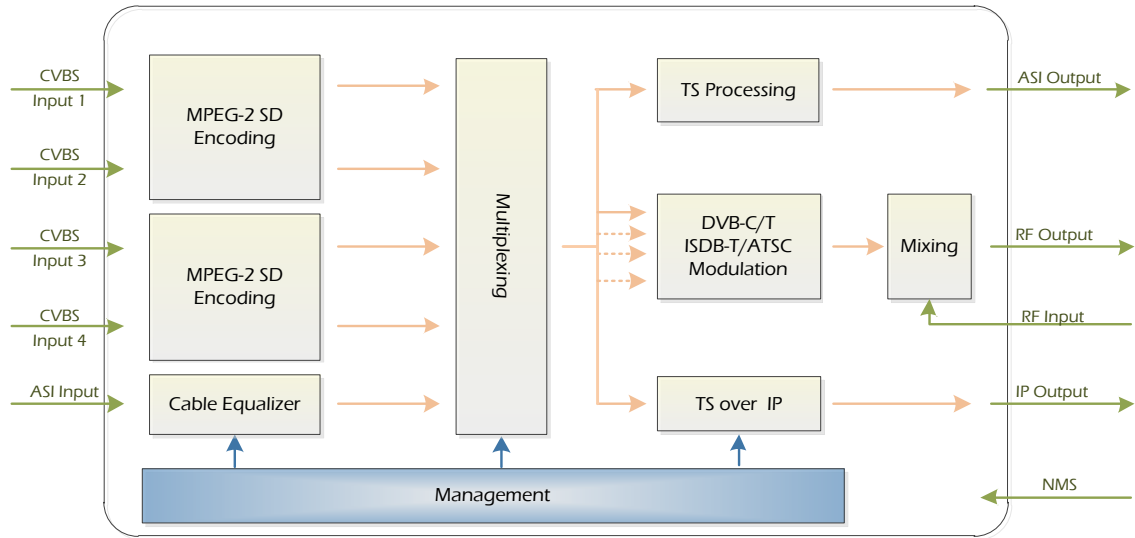
**General**

Voltage	100~240V AC, 50/60Hz
Power Consumption	25 W
Environment	0~50°C (non-condensing)
Dimension (W*D*H)	482*300*44 mm
Gross Weight	4.5 KGS

**Introductions**

INGRON7204EM Four-Channel MPEG-2 SD CVBS to Tuner Encoder Modulator offers a professional and high-integration modulator, together with encoding module. The device is able to accept 4-channel of CVBS signals, and compresses signals in MPEG-2 SD standard. Additional TS from ASI and Tuner(DVB-S/S2 or DTMB) ports is able to be mixed and multiplexed with the input channel(s). The device then modulates signals in DVB-C, DVB-T/T2, ATSC-T, or ISDB-T/Tb mode in excellent index. INGRON7204EM is able to be flexibly taken as an independent encoder, or modulator, too, as per its design of modularization. Due to its professional and full functions, INGRON7204EM has been widely applied to IPTV system, digital TV broadcasting & distribution systems, home entertainment, advertisement broadcasting, etc., in shopping mall, hospital and school, hotel and restaurant, museum, theater, cinema, community, airport, railway station, public square, club, and so on.

Diagram



Rear Panel



Options

	INGRON7204EM -10	INGRON7204EM -20	INGRON7204EM -30	INGRON7204EM -40	INGRON7204EM -50
CVBS Input	4*CVBS	/	/	/	/
SDI Input	/	2*SDI	/	/	/
Tuner Input	/	/	2*Tuner	2*DVB-S/S2 (BISS scrambling)	
YPbPr Input	/	/	/	/	1*YPbPr
WIFI Module	/	(Optional)			
ASI Input	1*ASI				