



**NDS3544M**

**Encoder Modulator**

**12 HDMI → 16\* DVB-C/8\*DVB-T/8\*ATSC/6\*ISDB-T Digital RF**



## Product Overview

NDS3544M HD encoder modulator is a professional high integration device which includes encoding, multiplexing, scrambling and modulating. It supports 12 HDMI and 12 CC inputs, one DVB-C (ATSC optional) tuner input and 256 IP input through Data1 (GE) port. It also supports DVB-C RF out with 16 non-adjacent carries or DVB-T/ATSC RF out with 8 non-adjacent carriers or ISDB-T RF out with 6 non-adjacent carriers and supports 16 MPTS as mirror of 16 carriers or 8 MPTS as mirror of 8 carriers or 6 MPTS as mirror of 6 carriers through Data2 (GE) output port. To meet customers' various requirements, it is also equipped with 1 ASI output as mirror of one of RF output carriers. This full function device makes it ideal for small CATV head end system.

## Key features

- **12 HDMI inputs with MPEG2 & MPEG4 AVC/H.264 Encoding**
- **12 CC(Closed Caption) input port**
- **1DVB-C(ATSC optional) tuner input for re-mux**
- **256 IP(DATA1 port only) input over UDP and RTP protocol—DVB-C/T/ATSC RF out**
- **192 IP (DATA1 port only) input over UDP and RTP protocol—ISDB RF out**
- **MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC, Dolby Digital AC3 (2.0) encoding (Optional),**



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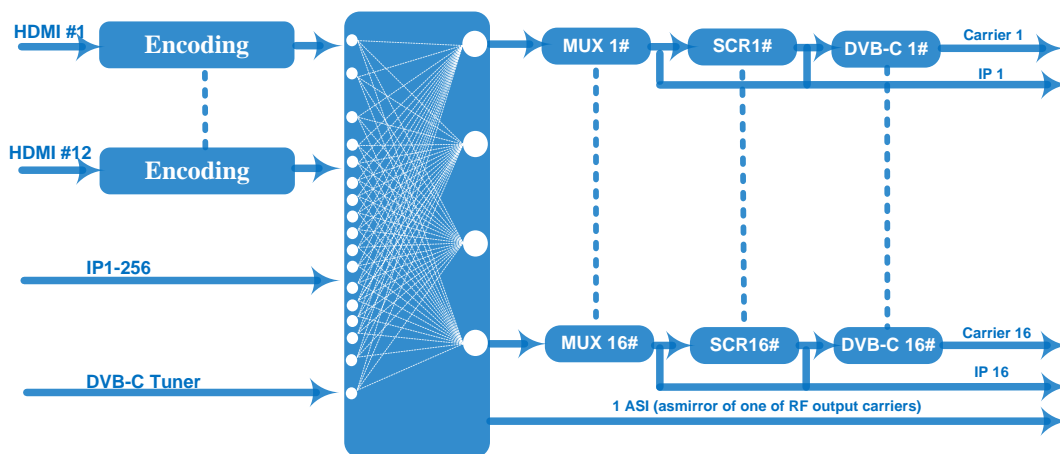
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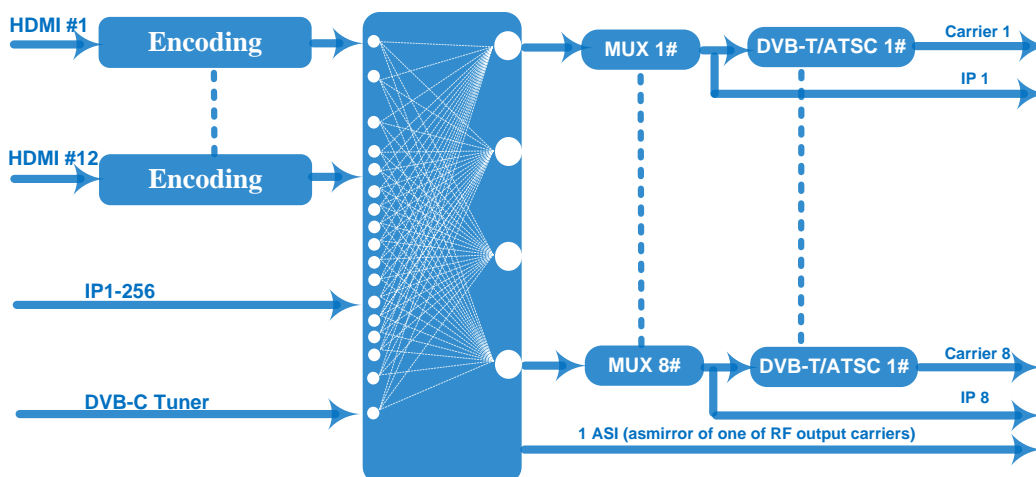
## AC3 (2.0/5.1) passthrough

- Support 16 groups multiplexing/Scrambling/DVB-C modulating
- Support 8 groups multiplexing/DVB-T/ATSC modulating---Optional
- Support 6 groups multiplexing/ISDB-T modulating---Optional
- Support 1 ASI out as mirror of one of RF output carriers
- Support 16 MPTS IP (DATA2 port only) output over UDP, RTP/RTSP
- Support 8 MPTS IP (DATA2 port only) output over UDP, RTP/RTSP-- DVB-T/ATSC RF out
- Support 6 MPTS IP (DATA2 port only) output over UDP, RTP/RTSP-- ISDB-T RF out
- Support PID remapping/ accurate PCR adjusting/PSI/SI editing and inserting
- Control via web management, and easy updates via web

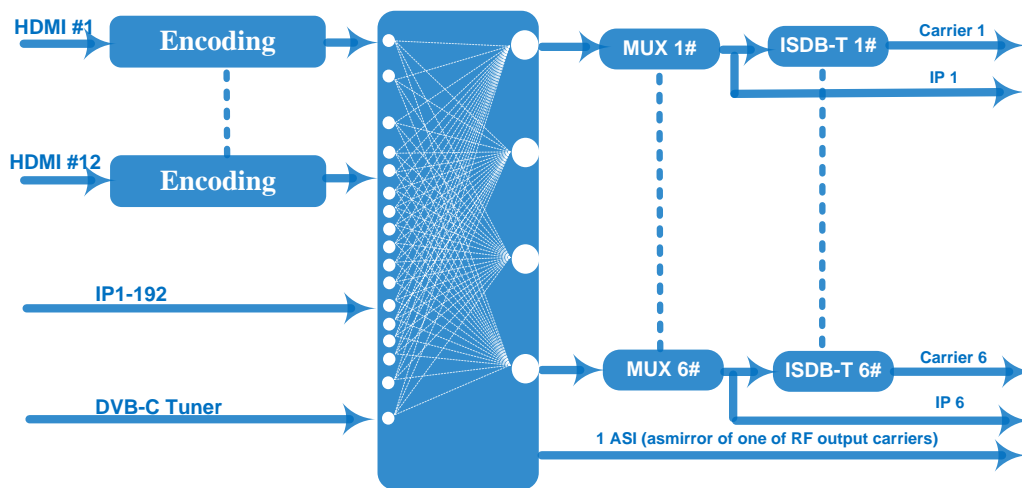
### Principle Chart



### DVB-C Principle Chart



### DVB-T/ATSC Principle Chart



**ISDB-T Principle Chart**

**Technical specification**

<b>Input</b>	12 HDMI inputs		
	12 CC(closed caption) input, BNC interface		
<b>Video</b>	Resolution	Input	1920*1080_60p, 1920*1080_50p,1920*1080_60i, 1920*1080_50i, 1280*720_60p, 1280*720_50P, 720*480_60i, 720*576_50i
		Output	1920*1080_60p, 1920*1080_50p,1920*1080_60i, 1920*1080_50i, 1440*1080_60i, 1440*1080_50i, 1280*720_60p, 1280*720_50P, 720*576_50p, 720*576_50i, 720*576_30p, 720*576_25p, 720*480_60p, 720*480_60i,720*480_30p, 720*480_25p,320*240_60p,320*240_50p, 320*240_30p, 320*240_25p,320*180_60p, 320*180_50p, 320*180_30p, 320*180_25p, 960*540_50i, 704*576_50i,704*480_60i, 640*576_50i 640*480_60i, 544*576_50i,544*480_60i,
<b>Audio</b>	Encoding	MPEG2 & MPEG4 AVC/H.264	
	Bit-rate	0.8~19Mbps for H.264 encoding 1~19Mbps for MPEG-2 encoding	
	Rate Control	CBR/VBR	
	GOP Structure	GOP B Frame: 0-3, GOP P Frame: 0-6	
	Advanced Pretreatment	De-interlacing, noise reduction	
<b>Audio</b>	Encoding	MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC, Dolby Digital AC3 (2.0) encoding (Optional), AC3 (2.0/5.1) passthrough	
	Sampling rate	48KHz	
	Bit-rate	64Kbps-320kbps each channel	

<b>Multiplexing</b>	Maximum PID Remapping	180 input per channel		
	Function	PID remapping ( automatically or manually)		
		Accurate PCR adjusting		
		Generate PSI/ SI table automatically		
<b>Scrambling</b>	Maximum simulcrypt CA	4		
	Standard	ETR289, ETSI 101197, ETSI 103197		
	Connection	Local/remote connection		
<b>Modulation</b>	DVB-C	QAM Channel: 16 non-adjacent carriers output (maximum bandwidth 192MHz)		
		Standard: EN300 429/ITU-T J.83A/B		
		MER: $\geq 40$ db		
		RF frequency: 50~960MHz, 1KHz step		
	RF output level: -20~+10dbm, 0.1db step			
	Symbol Rate: 5.0Msps~7.0Msps, 1ksps stepping			
		J.83A	J.83B	
	Constellation	16/32/64/128/256QAM	64/256 QAM	
	Bandwidth	8M	6M	
	DVB-T	Standard	EN300744	
		FFT mode	2K,4K, 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	
		MER	$\geq 42$ dB	
		RF frequency	50~960MHz, 1KHz step	
		RF out	8 non-adjacent carriers output (maximum bandwidth 192MHz)	
	RF output level	-20~ +10 dBm, 0.1db step		
	ATSC	Standard	ATSC A/53	
Bandwidth		6M		
Constellation		8VSB		
FEC		RS(208 188)+Trellis		
MER		$\geq 40$ dB		
ACL		-55 dBc		
RF frequency		50~960MHz, 1KHz step		
RF out		8 non-adjacent carriers output (maximum bandwidth 192MHz)		
RF output level	-20~+10dbm (for all carriers), 0.5db stepping			
ISDB-T	Standard	ARIB STD-B31		
	Bandwidth	6M		
	Constellation	QPSK, 16QAM, 64QAM		
	Guard Interval	1/32, 1/16, 1/8, 1/4		
	Transmission Mode	2K, 4K, 8K		

		Code rate	1/2, 2/3, 3/4, 5/6, 7/8
		MER	≥40dB
		RF frequency	50~960MHz, 1KHz step
		RF out	6 non-adjacent carriers output (maximum bandwidth 192MHz)
		RF output level	-20dBm~+10dBm, 0.1dB stepping
<b>Stream output</b>	RF output (F type interface)		
	1 ASI output as mirror of one of RF output carriers		
	16 MPTS output over UDP and RTP/RTSP as mirror of 16 DVB-C carriers,		
	8 MPTS output over UDP and RTP/RTSP as mirror of 8 DVB-T/ATSC carriers(Optional)		
	6 MPTS output over UDP and RTP/RTSP as mirror of 6 ISDB-T carriers(Optional)		
	1*1000M Base-T Ethernet interface		
<b>System function</b>	Network management (WEB)		
	Chinese and English language		
	Ethernet software upgrade		
<b>Miscellaneous</b>	Dimension (W×L×H)	482mm×440mm×44mm	
	Environment	0~45°C(work); -20~80°C (Storage)	
	Power requirements	AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz	

## Ordering Information

	IP input	IP output	RF carriers	Scrambling
DVB-C	256	16	16	√
DVB-T	256	8	8	×
ATSC	256	8	8	×
ISDB-T	192	6	6	×