

# MSM628S

## 16/24\* RF/IP to RF Modulator

DVB-S2 DVB-S2X



**MSM628S** is a high-density, modular and professional TS processor equipped with 16/24 independent tuners, which can be either of DVB-S2X/S2/S types works with Two GbE Ports and Two DVB-ASI Ports inputs. It's very suitable for any industry which needs to integrate live video content and provide variety of TV channels on the local Coax Cable deployment of Digital TV broadcasting commercial buildings, apartments, hotels, hospitals, schools and government Institutes.

**MSM628S** Equipped with two IP In/Out data ports reception or streaming of MPEG compliant transport streams over UDP/RTP. Each port operates independently and can be configured as either IP in and IP out supporting full 840 Mbit/s TS data rate and up to 256 MPEG services. The full content of an input port can be mapped transparently and Multiplex to an output modulated Carrier Channel with the option to perform PID filtering or service filtering.

**MSM628S** enables an all-IP headend architecture, resulting in a more scalable and lower-cost transition in contribution and distribution services. This unit is designed especially for high channel density environments where rapid deployment, advanced management and compatibility are critical. Used in some of famous ballparks in the world, this is an ideal solution for environments where you have a large number of displays, such as stadiums, entertainment facilities, or broadcast environment.

### Business Benefits

- Enhanced Modulated Channel resource utilization
- Cost efficiencies
- Reduced cost and complexity of management
- Concurrent high availability for all services
- Really can also use highest cost performance in low budget

### Features

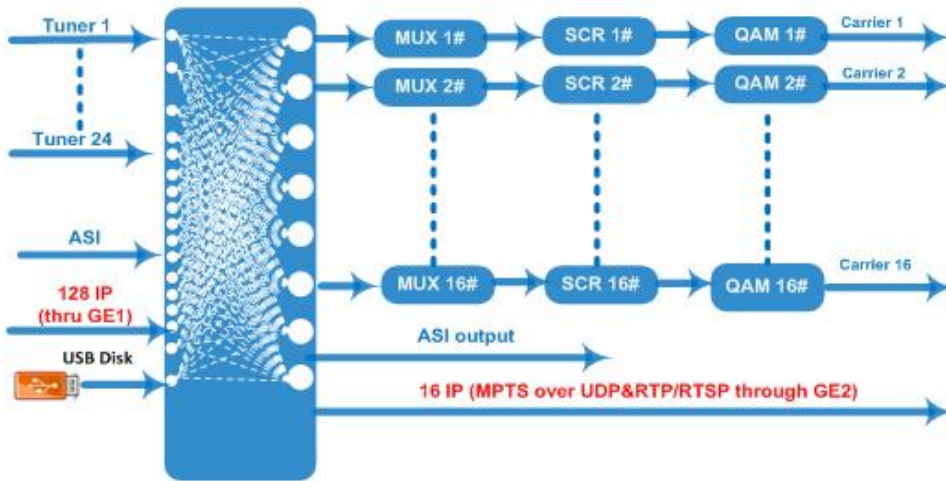
- Selectable RJ45 interfaces port of 2 GbE IP, 1\*DVB-ASI and up to 16/24 FTA RF inputs
- 16/24\* FTA Tuners Input, Supports variety of input DVB-S/S2/S2X
- Up to 256\*SPTS or MPTS Inputs over GbE Port
- 16\*DVB-C or 8\*DVB-T No-adjacent Carrier RF output as mirror of IP out after Multiplexing or Scrambling
- Support 8 groups BISS descrambling (version2)+8 groups multiplexing +8 groups DVB-T modulating
- A/V PID filtering supported for DVB-T version1
- PID Filtering, Remapping and Passthrough Capabilities with User-Defined PID Value and any Index of In/Out TS
- EPG EIT Table passthrough
- LCN (Logical Channel Number) support
- VCT(Virtual Channel Table) Insertion for DVB-C
- Support TS playing via the USB disk (FAT 32)
- Support NIT Table Insertion from Web, PSI/SI Editor and IP source inputs
- Multiplexing and transparent pass-through of two operating modes for each modulated carrier output
- TS Re-multiplexers with PSI/SI regeneration, Editing & inserting and PID processing
- PCR correction to accurately correct several PCR of the input data
- High density, high quality, high performance, high flexibility
- Excellent RF performance, Gain Level: -20 - +10dBm;
- Gain offset:10dB; BW: 50-960Mhz; MER ≥ 40dB
- Max.Level RF out much higher than the normal standard output level 0dBm, it will reduce the number of amplifier during the long distance transmission of the project. Increase reliability and cut the cost
- Easy-to-Use System Management via Web
- Diagnostics report, log printing of Kernel and System information
- Low Cost per Modulated channel - Breakthrough Price !
- passed the EU CE&RoHS certification

### Main Application

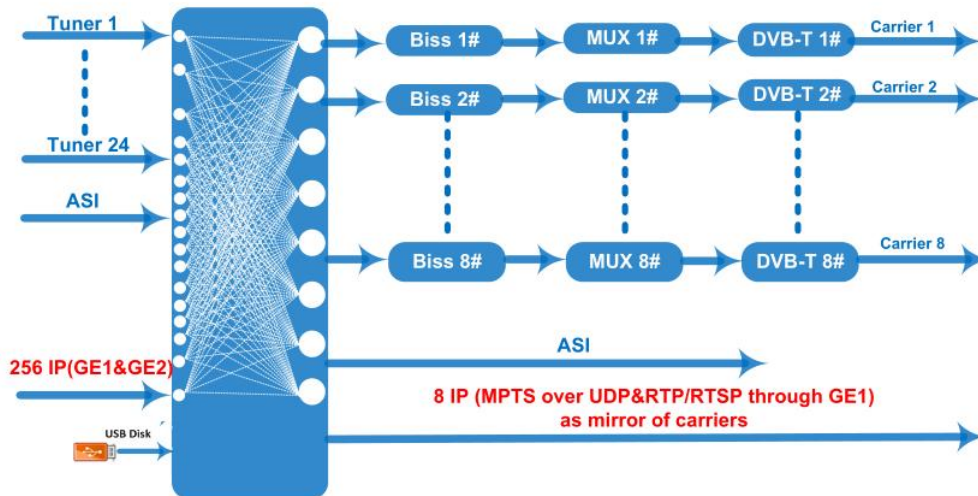
- Upgrade all your analog Head-ends to digital TV Solution
- Enterprise, Hotel, campus, hospital, Public Place
- Convert Huge FTA Channels into Cable TV networks
- Highest cost effective Digital TV deployment

### Principle Chart

For DVB-C output



For DVB-T output



	DVB-T version1	DVB-T version2	DVB-C
Biss Descrambling	x	√	x
Scrambling	x	x	√
A/V PID filtering	√	x	x
IP Input	256	256	128
IP Output	8 MPTS	8 MPTS	16 MPTS
RF Output	8 DVB-T	8 DVB-T	16 DVB-C

## TECHNICAL SPECIFICATIONS

### Tuners Inputs

Number of Tuners	16/24 FTA Tuners In
Type	DVB-S/S2/S2X
Connector	F female, 75 Ω

### DVB-S/S2/S2X tuners

#### DVB-S Mode

Input Frequency	950-2150Mhz
Symbol rate	0.5~45Mbauds
Signal Strength	- 65~-25dBm
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Constellation	QPSK
Max input bitrate	≤129 Mbps

#### DVB-S2 Mode

Input Frequency	950-2150Mhz
Symbol rate	QPSK/8PSK /16APSK: 0.5~45 Msps 32APSK: 0.5~40Msps;
FEC	QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10
Constellation	QPSK, 8PSK, 16APSK, 32APSK
Max input bitrate	≤129 Mbps

#### DVB-S2X Mode

Input Frequency	950-2150Mhz
Symbol rate	QPSK/8PSK /16APSK: 0.5~45 Msps 8APSK/32APSK: 0.5~40Msps
FEC	QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 13/45, 9/20, 11/20 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 8APSK: 5/9-L, 26/45-L 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 1/2-L, 8/15-L, 5/9-L, 26/45, 3/5, 3/5-L, 28/45, 23/36 , 2/3-L, 25/36, 13/18, 7/9, 77/90 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10, 2/3-L, 32/45, 11/15, 7/9
Constellation	QPSK, 8PSK, 8APSK, 16APSK, 32APSK
Max input bitrate	≤129 Mbps

### IP Interfaces

Types	Two independent Gigabit Ethernet GbE1 and GbE2 port
Connector	100/1000Base-T auto-sensing Each providing 1000Base-T (twisted pair, RJ-45)
IP Encapsulation	MPEG-TS over UDP/RTP IP
I/O Speed (1Gbe ports)	840 Mbps per port
<b>IP Input</b>	
Addressing & Protocols	Unicast, Multicast(IGMP V2/V3)
MPEG Format	188/204 Bytes per TS packet
Maxinumber of services	128 IP inputs via GbE1 (Only for DVB-C output) 256 IP inputs via each GbE Port (Only for DVB-T output)
Transport stream	Reception of MPTS and SPTS

#### IP Output

DVB-T Configuration	mirroring per Carrier Channel (thru GE1)
DVB-C Configuration	mirroring per Carrier Channel (thru GE2)
TS out	GbE1/GbE2
Packet Length	1-7
MPEG Format	188 Bytes per TS packet
Null Packet Processing	Filtering & Insertion

### DVB-ASI

Standard	GY-T 170-2001, EN50083-9
Interface port	1 port in, 2 ports out, BNC-Female, 75Ω
Date Bitrate	≅ 150Mbps
Packet Length	204/188bytes
Input amplitude	200-880mV
Reflection loss	15dB
Work Mode	Burst, Smooth

### Multiplexing

Maximum PID Remapping	360 output per channel PID remapping (automatically or manually) Accurate PCR adjusting Generate PSI/SI table automatically PAT, CAT, PMT extraction and generation SDI, NIT, TOT, BAT, TDT generation VCT (Only for DVB-C out) Setting Sync period Web, PSI/SI Editor, Any TS inputs multiplexing and transparent pass-through CA Filter, PID Remap, PID passthrough Service Name, Program number LCN(Logic Channel Number) Service Type,Service Provider PMT Descriptor Tag, PMT Descriptor Data PMT, PCR, Video, Audio PID PCR accurate adjusting Source Select
PSI Insert	
SI Insert	
PSIP Insert	
IPTV Sync	
NIT Insert	
Operating modes	
PID Processing	
Program Information	

### Scrambling(Only for DVB-C)

Simul-Crypt CAS number	4
Scramble Standard	ETR289, ETSI 101 197, ETSI 103 197
Connection	Local/remote connection
Table update	CAT/PMT
ECMG interface	TCP
EMMG interface	TCP/UDP
EMM bandwidth	0~3Mbps/TS

### General RF Modulation

Connector Type	1×F type Female in front panel, 75Ω
MER	≥ 40dB
Output Return Loss	14 dB
RF frequency	50~960MHz, 1KHz step
Output Level	-20~-+10dbm(87~107 dbμV),0.1db step
Modulated Carrier Enable	On/Off
Shoulder Attenuation	55dBc (typical.)
Spectrum Flatness	4dB over full output frequency range
Configure Mode	All Configuration or Each Modulated Carrier
Max.BandWidth	192Mhz(From Start to End freqs)

### QAM Modulating

Modulation Standard	DVB-C EN300429
Num of QAM Channels	16 Non-adjacent Carrier
QAM Encoding	ITU-T J.83 Annex A (DVB), Annex B
Symbol Rate	5.0~7.0Msps, 1Khz stepping
QAM Constellations	16/32/64/128/256QAM(Annex A) 64/256QAM(Annex B)
Bandwidth	8M (Annex A) , 6M (Annex B)

### DVB-T Modulating

Modulation Standard	EN300744
Num of Cofdm Channels	8 Non-adjacent Carrier
FFT mode	2K, 8K
Bandwidth	6Mhz, 7Mhz, 8Mhz
Constellation	QPSK, 16-QAM, 64-QAM
Guard Interval	1/4, 1/8, 1/16, 1/32
FEC Code	1/2, 2/3, 3/4, 5/6, 7/8

### System function

Management Port	Web-GUI, RJ45,100M
Configuration	Save/Restore/Facture Set/Backup/Load Setting English language Reset Button

### Environment

Dimensions (W*L*H)	482mm×300mm×44.5mm
Weight	4kg
Temperature	0~45℃(operation), -20~80℃(storage)
Power Voltage	AC 100V±1050/60Hz; AC 220V±10%, 50/60HZ

## Related Products

Model		MSM628-C	MSM628-T	MSM628S-C	MSM628S-T	MSM628Pro-C	MSM628Pro-T
		● support ○ No support					
Tuner Model	DVB-S/S2/S2X	●	●	●	●	●	●
	DVB-S/S2	●	●	○	○	○	○
	DVB-C/T/T2/ISDB-T	●	●	○	○	●	●
	ATSC	●	●	○	○	○	○
Tuner Number		16	16	16/24	16/24	16/24	16/24
Tuner Loop		●	●	○	○	●	●
IP IN		512*IP	256*IP	128*IP	256*IP	128*IP	128*IP
IP OUT		1*MPTS	8*MPTS	16*MPTS	8*MPTS	16*MPTS	8*MPTS
ASI IN		2	2	1	1	2	2
ASI OUT		○	○	2	2	2	2
USB		○	○	●	●	●	●
LCD		○	○	○	○	●	●
CAS		4	○	4	○	4	○
Modulator		16*DVB-C	8*DVB-T	16*DVB-C	8*DVB-T	16*DVB-C	8*DVB-T