M60Plus

High Density 10G 112 Edge QAM modulator

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M60Plus, all in one device, IP QAM (DVB-C) Modulator combining multiple 10G SFP+/SFP input, transport stream multiplexing, scrambling, QAM modulation channels in a 1U rackmount unit. 512 IP in through SFP+/SFP ports 1-3, up to 64 IP over UDP/RTP/RTSP protocol output with Mux, and 2 RF ports for 64/48 non-adjacent QAM carries output for **each module**. With 10G switch built in, it can process 10G optical signal to work as a traditional QAM modulator.

Equipped with 2 card slots to load 32ch or 48ch or 64ch QAM card, **M60Plus** supports scalable, reliable, high performance video stream services to cable operators. It is mainly applied to the cable DTV head-ends, and sub head-ends.

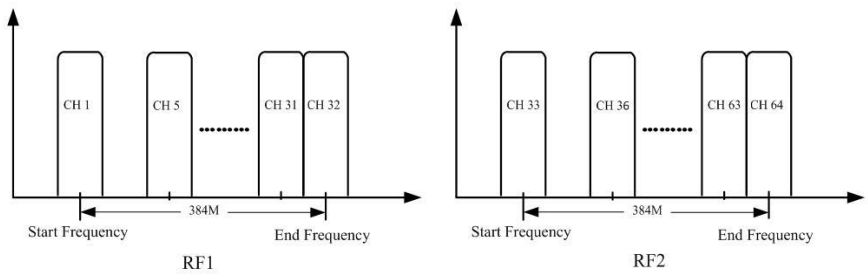
Key Features

- High density, modularized plug-in design, 1U chassis with max 2 QAM cards
- Support 3 SFP+ (10G)/SFP(1G) ports input & output from front panel
- Support multiplexer and scrambler with 6 CAS Simul-cryption
- Support ITU-T J.83 A/B/C modulation
- 112 non-adjacent QAM carrier outputs
- accurate PCR adjusting/CA filtering
- PID remapping (auto/manually optional)
- PCR accurate adjusting
- Easy-to-Use System Management via Web

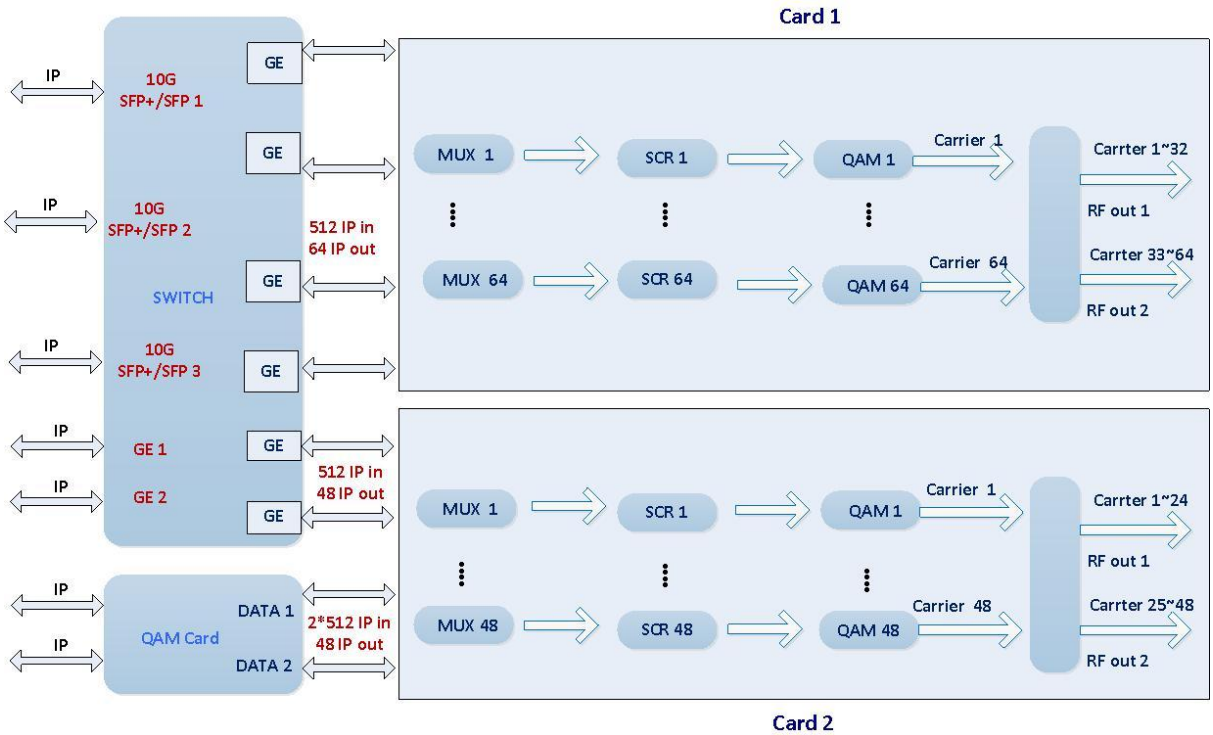
Application

- Cable digital TV headend system base on IP network
- Broadcast Application built-in multiplexing and scrambling function
- Advertising, monitoring, training and educating
- Upgrade all your analog Head-ends to cable DTV Solution
- Enterprise, Hotel, campus, hospital, Public Place

Carrier Setting Illustration (64QAM Card)



Principle Chart (one 64QAM card + one 48QAM card)



TECHNICAL SPECIFICATIONS

Input

Input from Front Panel	Max 512 IP in per card through SFP+/SFP ports 1-3 and 2 GE ports
Input from Daughter Card	2*512 IP in from 2 GE ports (SFP port optional)--32/48 QAM
Transmission Rate	Max 9600Mbps for each 10G SFP+/SFP input
Transport Protocol	TS over UDP/RTP, unicast and multicast, IGMP V2/V3

Multiplexing

Max PIDs Remapping	256 per output channel
PID remapping	by automatically and manually
PCR	accurate adjusting
PSI/SI	PSI/SI table auto-generation

Scrambling Parameters

Max simulcrypt CA	6
Scrambling algorithm	Comply with DVB-CSA
Scramble Standard	ETR289, ETSI 101 197, ETSI 103 197
Connection	Local/remote connection

Modulation Output (QAM Module)

Modulation Standard	EN300 429/ITU-T J.83 Annex A/B/C
QAM Channel	32/48/64/96/112 non-adjacent carriers output 384Mbps bandwidth for each RF port
QAM Constellations	16/32/64/128/256QAM (Annex A) 64/256QAM (Annex B/C)
Bandwidth	8M(Annex A) 6M (Annex B/C)
Symbol Rate	3600~7000Ksps, 1ksps stepping 5057Ksps (J.83B, 64QAM) 5361Ksps (J.83B, 256QAM)
Constellation	16, 32, 64 , 128, 256QAM
FEC	RS (204, 188)

RF output

Interface (per module)	1 or 2 F type output ports for 32/48/64 carriers card, 75Ω. 32ch QAM card: all Carrier out thru one RF port 32ch/48ch QAM card: Carrier 1~16/1~24 out thru RF1, 17~32/25~48 thru RF2 64ch QAM card: Carrier 1~32 out thru RF1, 33~64 thru RF2
RF Range	50~960MHz, 1kHz stepping
MER	≥ 40dB
Output Level	-20dBm~+10dBm(87~117dbμV), 0.1dB stepping

TS Output

Per Daughter QAM Card	32/48/64 IP output over UDP/RTP/RTSP, unicast/multicast, through SFP+/SFP ports 1-3 or GE ports RJ45

Management

Management Port	Web-GUI, RJ45, 100M
Management	Web management Network management software (NMS) supporting
Language	English

Environment

Power Supply	AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz
Power consumption	50W(1 daughter QAM card)/75W(2 daughter QAM cards)
Operation temperature	0°C ~45°C (32°F ~113°F)
Storage temperature	-20°C ~80°C (-4°F~176°F)
Dimensions	420 (W)x440(L)x44.5mm(H) (1RU)

Ordering Information

32ch QAM out	32QAM card * 1
48ch QAM out	48QAM card * 1
64ch QAM out	64QAM card * 1
96ch QAM out	96QAM card * 1
112ch QAM out	112QAM card * 1