

# PRODUCT MODEL NUMBER: TL-9932 32-in-1 IP QAM MODULATOR



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## **PRODUCT OVERVIEW**

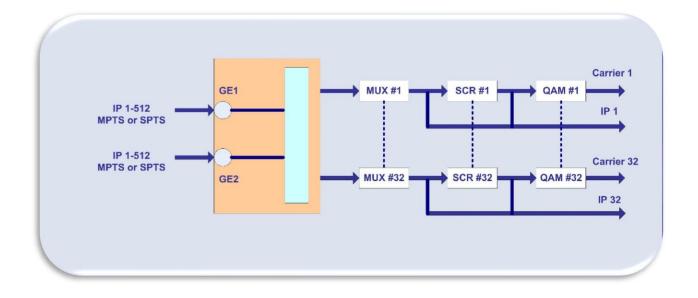
TL-9932 32 in 1 IP QAM modulator is our Mux-scrambling-modulating all-in-one device. It supports maximum 1024 IP input through the GE port and 32 multiplexing scrambling QAM (DVB-C) modulating channels with non-adjacent carriers (50MHz~960MHz) output through the RF output interface. Its pay-as-you-grow modular design and flexible configuration are making it extremely scalable, very reliable with high performance, all of which are adaptable to newly generation CATV broadcasting system.

### **KEY FEATURES**

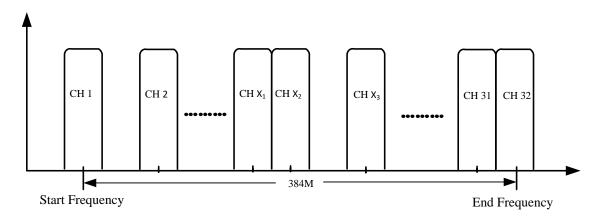
- > 2 GE input, Data1 and Data2 (SFP interface optional)
- Supports up to 1024 channels TS over UDP/RTP, unicast and multicast, IGMP v2\v3
- > Max 840Mbps for each GE input
- Supports accurate PCR adjusting/CA filtering, PID rem apping and PSI/SI editing
- > Supports up to 256 PITRANSLITE remapping per channel
- Support 32 multiplexed or scrambled TS over UDP/RTP/RTSP output
- 32 non-adjacent QAM carrier output, compliant to DVB-C (EN 300 429) and ITU-T J.83 A/B
- > Supports RS (204,188) encoding
- Support Web-based Network management



# **PRINCIPLE CHART**



# **CARRIER SETTING ILLUSTRATION**



## **SPECIFICATIONS**

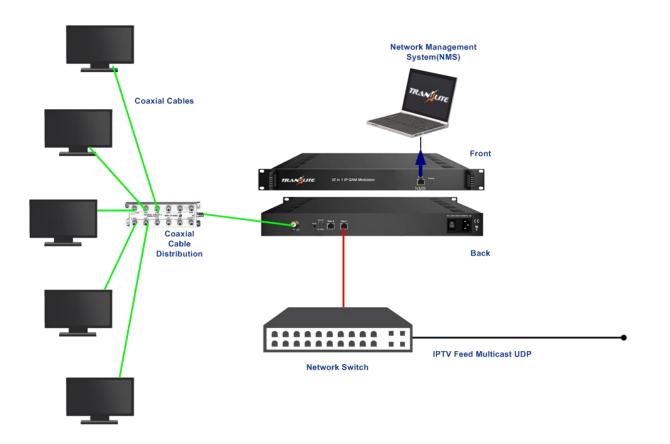
	Input
Input	512×2 IP input, 2*100/1000M Ethernet Port (SFP interface optional)
Transport Protocol	TS over UDP/RTP, unicast and multicast, IGMP V2/V3
Transmission Rate	Max 840Mbps for each GE input



Input Channel         1024           Output Channel         32           Max PIIransilie         256 per channel           PID re-mapping (auto/manually optional)         PID re-mapping (auto/manually optional)           Functions         PCR accurate adjusting PSI/SI table automatically generating           Max simulscrypt CA         4           Scramble Standard         ETR289, ETSI 101 197, ETSI 103 197           Connection         Local/remote connection           VB-C Modulator         J.83A           Scration         Local/remote connection : 16/32/64/128/256QAM           J.83A         Bandwidth :8M           Section         J.83A           Bandwidth :6M         Bandwidth :6M           GAM Channel         32 non-adjacent carrier           Modulation         Sunovadjacent carrier           Symbol Rate         S.0-7.0Msps, 1ksps stepping           Constellation         16, 32, 64, 128, 256QAM           FEC         RF Output           Interface         1 Ftyped output port for 32 carriers, 75Ω           RF Range         S0-960MHz, 1kHz stepping           Output Level         -20dBm+10dBm(87-117dbµV), 0.1dB stepping           MRR         ≥ 40dB	Mux			
Max PIIransilie         256 per channel           PID re-mapping (auto/manually optional)           PEnetions         PCR accurate adjusting PSI/SI table automatically generating           Max simulscrypt CA         4           Scramble Standard         ETR289, ETSI 101 197, ETSI 103 197           Connection         Local/remote connection           DVB-C Modulator         J.83A           Constellation : 16/32/64/128/256QAM           Jasa         Constellation : 64QAM/ 256QAM           Bandwidth :8M         Bandwidth :6M           QAM Channel         32 non-adjacent carrier           Modulation         EN300 429/ITU-T J.83A/B (DVB-C)           Standard         Stondard           Symbol Rate         S.0~7.0Msps, 1ksps stepping           Constellation         16, 32, 64, 128, 256QAM           FEC         RF (204, 128)           Symbol Rate         S.0~7.0Msps, 1ksps stepping           Constellation         16, 32, 64, 128, 256QAM           FEC         RF (204, 128, 256QAM           FEC         2 (204, 188)           FEC         S (204, 188)           Gottput         port for 32 carriers, 75Q           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbµV), 0.1dB ste	Input Channel	1024		
PLD re-mapping (auto/manually optional)         PCR accurate adjusting PSI/SI table automatically generating         Max simulscrypt CA       4         Scramble Standard       ETR289, ETSI 101 197, ETSI 103 197         Connection       Local/remote connection         DVB-C Modulator       A         Sectioon       J.83A         Constellation : 16/32/64/128/256QAM         Bandwidth :8M         Sectioon       Constellation : 64QAM/ 256QAM         Bandwidth :8M         Band	Output Channel	32		
Functions         PCR accurate adjusting PSI/SI table automatically generating           Scramble Standard         ETR289, ETSI 101 197, ETSI 103 197           Connection         Local/remote connection           DVB-C Modulator         Constellation : 16/32/64/128/256QAM           Section         Constellation : 16/32/64/128/256QAM           DVB-C Modulator         Constellation : 16/32/64/128/256QAM           Section         Constellation : 64QAM/ 256QAM           J.838         Constellation : 64QAM/ 256QAM           J.838         Constellation : 64QAM/ 256QAM           Section         School 22 non-adjacent carrier           Modulation         EN300 429/ITU-T J.83A/B(DVB-C)           Standard         School 22, 64, 128, 256QAM           FEC         Rs (204, 188)         FEO utput           Interface         1 F typed output port for 32 carriers, 75Ω           RF Range         S0~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbµV), 0.1dB stepping           MER         ≥ 40dB           St Dutput         St Dutput           32 IP output ov=/// UP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethemet Ports (SFP)           System         Submoticast, 2*100/1000M Ethemet Ports (SFP)	Max PITranslite	256 per channel		
Number of the second		PID re-mapping (auto/manually optional)		
Scrambling Parameters           Max simulscrypt CA         4           Scramble Standard         ETR289, ETSI 101 197, ETSI 103 197           Connection         Local/remote connection           Modulators Parameters         Modulators Parameters           DVB-C Modulator         J.83A         Constellation : 16/32/64/128/256QAM           Sectioon         J.83A         Constellation : 64QAM/ 256QAM           J.83B         Constellation : 64QAM/ 256QAM           Bandwidth :8M         Bandwidth :6M           QAM Channel         32 non-adjacent carrier           Modulation         EN300 429/ITU-T J.83A/B(DVB-C)           Standard         EN300 429/ITU-T J.83A/B(DVB-C)           Symbol Rate         5.0~7.0Msps, 1ksps stepping           Constellation         16, 32, 64 , 128, 256QAM           FEC         RS (204, 188)           Interface         1 F typed output port for 32 carriers, 75Ω           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbµV), 0.1dB stepping           MER         ≥ 40dB           Soutput           System           Network management software (NMS) supporting	Functions	PCR accurate adjusting		
Max simulscrypt CA         4           Scramble Standard         ETR289, ETSI 101 197, ETSI 103 197           Connection         Local/remote connection           ModUlators Parameters           DVB-C Modulator         J.83A         Constellation : 16/32/64/128/256QAM           Sectioon         J.83A         Bandwidth :8M           DVB-C Modulator         Sectioon         Constellation : 64QAM/ 256QAM           J.83B         Constellation : 64QAM/ 256QAM           J.83B         Constellation : 64QAM/ 256QAM           Bandwidth :6M         Bandwidth :6M           QAM Channel         32 non-adjacent carrier           Modulation         Standard           Symbol Rate         5.0~7.0Msps, 1ksps stepping           Constellation         16, 32, 64, 128, 256QAM           FEC         RS (204, 188)           Interface         1 F typed output port for 32 carriers, 75Q           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbµV), 0.1dB stepping           MER         ≥ 40dB           Soutput           System           32 IP output ov=//P/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)            Soutput		PSI/SI table automatically generating		
Scramble Standard         ETR289, ETSI 101 197, ETSI 103 197           Connection         Local/remote connection           Modulator         Constellation : 16/32/64/128/256QAM           DVB-C Modulator         J.83A         Bandwidth :8M           Sectioon         Constellation : 64QAM/ 256QAM           J.83B         Constellation : 64QAM/ 256QAM           J.83B         Constellation : 64QAM/ 256QAM           GAM Channel         32 non-adjacent carrier           Modulation         EN300 429/ITU-T J.83A/B(DVB-C)           Standard         So-7.0Msps, 1ksps stepping           Constellation         16, 32, 64, 128, 256QAM           FEC         RS (204, 188)           FEC         RS (204, 188)           Interface         1 F typed output port for 32 carriers, 75Ω           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbµV), 0.1dB stepping           MER         ≥ 40dB           Iterrore         Iterrore           System         System           32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)           System         System           MER         System	Scrambling Parameters			
Connection         Local/remote connection           Modulators Parameters           Modulator Section         Constellation : 16/32/64/128/256QAM           DVB-C Modulator         Section         Constellation : 16/32/64/128/256QAM           Section         Constellation : 64QAM/ 256QAM           J.83A         Bandwidth :8M           GaAM Channel         32 non-adjacent carrier           Modulation         EN300 429/ITU-T J.83A/B(DVB-C)           Standard         EN300 429/ITU-T J.83A/B(DVB-C)           Symbol Rate         5.0~7.0Msps, 1ksps stepping           Constellation         16, 32, 64 , 128, 256QAM           FEC         RF (204, 188)           Interface         1 F typed output port for 32 carriers, 75Ω           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbµV), 0.1dB stepping           MER         ≥ 40dB           TS Output           32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)           System         System	Max simulscrypt CA	4		
Modulators Parameters         DVB-C Modulator         Sectioon         J.83A       Bandwidth :8M         Bandwidth :8M       Bandwidth :6M         QAM Channel       32 non-adjacent carrier         Modulation       EN300 429/ITU-T J.83A/B (DVB-C)         Standard       EN300 429/ITU-T J.83A/B (DVB-C)         Symbol Rate       5.0~7.0Msps, 1ksps stepping         Constellation       16, 32, 64, 128, 256QAM         FEC       RS (204, 188)         FOutput         Interface         1 F typed output port for 32 carriers, 75Ω         RF Range       50~960MHz, 1kHz stepping         Output Level         Output Level         Soutput         Soutput         Sutput         Sutput         Sutput         System         System         System	Scramble Standard	ETR289, ETSI 101 197, ETSI 103 197		
bVB-C Modulator       SaA       Constellation : 16/32/64/128/256QAM         Bandwidth :8M       Bandwidth :8M         J83B       Constellation : 64QAM/ 256QAM         Bandwidth :6M       Bandwidth :6M         QAM Channel       32 non-adjacent carrier         Modulation       BN300 429/ITU-T J.83A/B(DVB-C)         Symbol Rate       5.0~7.0Msps.1ksps stepping         Constellation       16, 32, 64, 128, 256QAM         FEC       RS (204, 128, 256QAM         FEC       RS (204, 128, 256QAM         Interface       1 F typed outpt port for 32 carriers, 75Ω         RF Range       50~960MHz, 1kHz stepping         Output Level       -20dBm~+10dBm(87~117dbµV), 0.1dB stepping         MER       ≥ 40dB         System	Connection	Local/remote connection		
J.83A       Bandwidth :8M         Sectioon       J.83B       Constellation : 64QAM/ 256QAM         J.83B       Bandwidth :6M         QAM Channel       32 non-adjacent carrier         Modulation       EN300 429/ITU-T J.83A/B(DVB-C)         Standard       5.0~7.0Msps, 1ksps stepping         Constellation       16, 32, 64, 128, 256QAM         FEC       RS (204, 188)         FOutput         Interface       1 F typed output port for 32 carriers, 75Ω         RF Range       50~960MHz, 1kHz stepping         Output Level       -20dBm~+10dBm(87~117dbµV), 0.1dB stepping         MER       ≥ 40dB         System         System         System	Modulators Parameters			
DVB-C Modulator       Bandwidth :8M         Sectioon       Constellation : 64QAM/ 256QAM         J.83B       Bandwidth :6M         GAM Channel       32 non-adjacent carrier         Modulation       EN300 429/ITU-T J.83A/B(DVB-C)         Standard       5.0~7.0Msps, 1ksps stepping         Symbol Rate       5.0~7.0Msps, 1ksps stepping         Constellation       16, 32, 64 , 128, 256QAM         FEC       RS (204, 188)         Interface         1 F typed output port for 32 carriers, 75Ω         RF Range       50~960MHz, 1kHz stepping         Output Level       -20dBm~+10dBm(87~117dbµV), 0.1dB stepping         MER       ≥ 40dB         System         32 IP output ov=UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)         System         System		Constellation : 16/32/64/128/256QAM		
J.83BBandwidth : 6MGAM Channel32 non-adjacent carrierModulation StandardEN300 429/ITU-T J.83A/B(DVB-C)Symbol Rate5.0~7.0Msps, 1ksps steppingConstellation16, 32, 64, 128, 256QAMFECRS (204, 188)InterfaceInterface1 F typed output port for 32 carriers, 75ΩRF Range50~960MHz, 1kHz steppingOutput Level-20dBm~+10dBm(87~117dbµV), 0.1dB steppingMER≥ 40dBSystemSystemSystemNetwork management software (NMS) supporting	DVB-C Modulator			
J.83B       Bandwidth :6M         QAM Channel       32 non-adjacent carrier         Modulation       EN300 429/ITU-T J.83A/B(DVB-C)         Standard       5.0~7.0Msps, 1ksps stepping         Constellation       16, 32, 64, 128, 256QAM         FEC       RS (204, 188)         Fte Output         Interface       1 F typed output port for 32 carriers, 75Ω         RF Range       50~960MHz, 1kHz stepping         Output Level       -20dBm~+10dBm(87~117dbµV), 0.1dB stepping         MER       ≥ 40dB         System         System         System	Sectioon	Constellation : 64QAM/ 256QAM		
QAM Channel         32 non-adjacent carrier           Modulation Standard         EN300 429/ITU-T J.83A/B(DVB-C)           Symbol Rate         5.0~7.0Msps, 1ksps stepping           Constellation         16, 32, 64, 128, 256QAM           FEC         RS (204, 188)           Interface         1 F typed output port for 32 carriers, 75Ω           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbμV), 0.1dB stepping           MER         ≥ 40dB           System           32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)           System           System		J.83B		
Modulation StandardEN300 429/ITU-T J.83A/B(DVB-C)Symbol Rate5.0~7.0Msps, 1ksps steppingConstellation16, 32, 64, 128, 256QAMFECRS (204, 188) <b>RF Output</b> Interface1 F typed output port for 32 carriers, 75ΩRF Range50~960MHz, 1kHz steppingOutput Level-20dBm~+10dBm(87~117dbµV), 0.1dB steppingMER≥ 40dB <b>Sourput</b> 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)SystemLetwork management software (NMS) supporting				
StandardEN300 429/ITU-T J.83A/B(DVB-C)Symbol Rate5.0~7.0Msps, 1ksps steppingConstellation16, 32, 64, 128, 256QAMFECRS (204, 188) <b>RF Output</b> Interface1 F typed output port for 32 carriers, 75ΩRF Range50~960MHz, 1kHz steppingOutput Level-20dBm~+10dBm(87~117dbµV), 0.1dB steppingMER≥ 40dB <b>S Output</b> SystemLite output over k management software (NMS) supporting				
Constellation16, 32, 64, 128, 256QAMFECRS (204, 188) <b>RF Output</b> Interface1 F typed output port for 32 carriers, 75ΩRF Range50~960MHz, 1kHz steppingOutput Level-20dBm~+10dBm(87~117dbµV), 0.1dB steppingMER≥ 40dB <b>SOUTPUT</b> 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)SystemLetwork management software (NMS) supporting		EN300 429/ITU-T J.83A/B(DVB-C)		
FECRS (204, 188)Interface1 F typed output port for 32 carriers, 75ΩRF Range50~960MHz, 1kHz steppingOutput Level-20dBm~+10dBm(87~117dbµV), 0.1dB steppingMER≥ 40dBTS Output32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)SystemNetwork management software (NMS) supporting	Symbol Rate	5.0~7.0Msps, 1ksps stepping		
RF Output         Interface       1 F typed output port for 32 carriers, 75Ω         RF Range       50~960MHz, 1kHz stepping         Output Level       -20dBm~+10dBm(87~117dbµV), 0.1dB stepping         MER       ≥ 40dB         TS Output         32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)         System         Network management software (NMS) supporting	Constellation	16, 32, 64 , 128, 256QAM		
Interface         1 F typed output port for 32 carriers, 75Ω           RF Range         50~960MHz, 1kHz stepping           Output Level         -20dBm~+10dBm(87~117dbμV), 0.1dB stepping           MER         ≥ 40dB           IS Output           32 IP output ov=VDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)           System           Network management software (NMS) supporting	FEC	RS (204, 188)		
RF Range       50~960MHz, 1kHz stepping         Output Level       -20dBm~+10dBm(87~117dbµV), 0.1dB stepping         MER       ≥ 40dB         TS Output         32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)         System         Network management software (NMS) supporting	RF Output			
Output Level-20dBm~+10dBm(87~117dbµV), 0.1dB steppingMER≥ 40dBTS Output32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)SystemNetwork management software (NMS) supporting	Interface	1 F typed output port for 32 carriers, $75\Omega$		
MER       ≥ 40dB         TS Output         32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)         System         Network management software (NMS) supporting	RF Range	50~960MHz, 1kHz stepping		
TS Output 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP) System Network management software (NMS) supporting	Output Level	-20dBm~+10dBm(87~117dbµV), 0.1dB stepping		
32 IP output over UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP) System Network management software (NMS) supporting	MER	≥ 40dB		
System Network management software (NMS) supporting	TS Output			
Network management software (NMS) supporting	32 IP output over	r UDP/RTP/RTSP, unicast/multicast, 2*100/1000M Ethernet Ports (SFP)		
	System			
Conoral	Network management software (NMS) supporting			
General	General			
Demission 420mm×440mm×44.5mm (WxLxH)	Demission	420mm×440mm×44.5mm (WxLxH)		
Temperature     0~45°C(operation), -20~80°C(storage)	Temperature	0~45°C(operation), -20~80°C(storage)		
<b>Power Supply</b> AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz	Power Supply	AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz		



## **APPLICATIONS**



#### **For Sales**

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