Outline

GQ-3650DR is a high density and all-in-one multi functional QAM modulator devolped by GOSPELL. It combines RF receiving & demodulation, TS re-multiplexing, scrambling and QAM modulation into 1RU, and provides two kinds of RF demodulation options; either QPSK/8PSK or QAM demodulation can be selected according to operators' needs. Moreover, the GQ-3650DR supports up to eight channels of input transport streams from ASI interfaces. Therefore, with this product, operators obtain lower cost expenditure, lower energy consumption and minimized space of racks occupied. This all comes from the benefits of GQ-3650DR's high density and all-in-one design.

GQ-3650DR adopts GOSPELL's flexible licensing mechanism for scrambling function and numbers of QAM channels. Cable operators can easily enable up to four QAM channels and four DVB SimulCrypt CAs by importing the license file which is provided by GOSPELL. This flexibility brings operators lower capital expenditure (CAPEX) not only today but also tomorrow.

GQ-3650DR supports both Web browser and SNMP management for remote monitoring and control in real time. This can significantly reduce management time and operating expense (OPEX) for operators. Due to its flexibility and versatility, the GQ-3650DR can be widely applied to DTV central headend and remote headend system.

Features

- High density and all-in-one solution in 1RU, integrated functions including RF receiving & demodulating, TS re-multiplexing, scrambling and QAM modulation output
- Options of up to four channels of QAM or QPSK/8PSK demodulating inputs
- 3Mbps EMM bandwidth, up to 256 programs scrambled
- ITU-T J.83 Annex A/B/C compliant, 6MHz or 8MHz bandwidth
- Supports up to four DVB SimulCrypt CAS(s) and DVB-CSA scrambling
- Multiple firmware options to enable built-in scrambler and numbers of modulating channels
- Up to 64 programs for each modulating channel, 128 PIDs per program, PSI/SI processing
- Front panel control and LCD display
- Supports PID filtering, pass-through, PCR auto-correction
- Supports various customizable PSI/SI table extraction, resolving and modification
- Self-adaptive filter circuit design ensures outstanding out-of-band rejection
- Web browser and SNMP management for local and remote management, monitoring and control

Technical Specifications

RF Input Options

Satellite Input	
Number of Inputs	1(or 2, 4) x RF Input 1(or 2, 4) x RF Loop Out
Connector Type	F-Type (Female, 75Ω)
Standards	DVB-S/S2 (EN300421/EN302307)
Constellations	DVB-S: QPSK DVB-S2: QPSK/8PSK
Frequency Range	950MHz to 2150MHz
Input Signal Level	-65 to -25dBm
LNB Power Output	0V/+DC 13V/18V, Imax=400mA
Cable Input	
Number of Inputs	1(or 2, 4) x RF Input 1(or 2, 4) x RF Loop Out
Connector Type	F-Type (Female, 75Ω)
Standards	DVB-C (EN300429)
Constellations	16/32/64/128/256 QAM
Frequency Range	50MHz to 860MHz
Input Signal Level	-20 to +20dBm (64QAM)
ASI Transport Stream Input	
ASI Input	2(or 4, 8) x ASI Input
Data Format	188 Bytes MPEG-TS packet length
Input Bit Rate	1.5 to 214Mbps each, max. 400Mbps in total
Connector Type	BNC (Female, 75Ω)
Transport Stream Re-multiplexing	
Capacity of Processing	Up to 8 TS inputs and 4 TS outputs
PCR	Auto correction
PSI	PSI auto-generation, manual insertion
PID	Remapping and filtering and pass-through
PSI/SI Standards	ISO/IEC 13818-1, DVB SI(ESI EN300468)
Real-time Statistics	TS rate, program rate, PID rate
Transport Stream Scrambling	
Scrambling Algorithm	Comply with DVB-CSA
Numbers of CAS	Optional up to four DVB SimulCrypt CA(s)
CAS Interface Protocol	TCP/UDP (via Network Management Port)
EMM Bandwidth	Up to 3 Mbps per TS
Scrambling Rate	Up to 60 Mbps per QAM channel
Scrambling Level	Program-level
Modulation Output	
Output Connector	1 x RF Output

	1 x -20dB RF Output (Test Port)
Connector Type	F-Type (Female, 75W)
RF Frequency Range	30 to 860 MHz
Bandwidth	6 or 8MHz
Numbers of Output	Optional up to four QAM channels
Modulation Standards	ITU-T J.83 Annex A, B and C
Constellations	Annex A: 16 /32 /64 /128 /256QAM Annex B: 64/256QAM Annex C: 32 /64 /128 /256QAM
Symbol Rate	Annex A: 4.2 to 7 M baud Annex B: 5.057 M baud Annex C: 4.2 to 5.3 M baud
RF Output Power Level	90 to 110dBμV (RF output Port) 70 to 90dBμV (-20dB test port)
MER	≥38dB (64QAM, 6.875MBaud)
SNR(Out of band)	≥50dB
Return Loss	≥12dB
Gain Fine-tune	0 to 5.0dB, Step Size 0.25dB
Network Management	
Interface	1 x 10/100 Base-T Ethernet
Connector	RJ-45
Management	Web browser and SNMP management
Miscellaneous	
Front Panel	3.5'' LCD with 6 x Control Button for 2-lines alphanumeric display and parameter settings
	3 x Dual color LED, for status indications of power, work and Alarm
Rear Panel	1 x Power Receptacle (AC Input)
	1 x Power switch
Power Supply	
Input Voltage	90 - 250 VAC, 50/60Hz
Power Consumption	50W(Typ.)
Environmental	
Operating Temperature	0℃ to 45℃(32℉ to 113℉)
Storage Temperature	-20 to 80℃(-4℉ to 176℉)
Operating Humidity	90%, non-condensing
Mechanical	
Product Dimensions (W x H x D)	483mm x 44.5mm x 400mm 19'' x 1.73'' (1 RU) x 15.8''
Product Weight	5Kg (11 lbs)