GM-2730

Multi-functional Network Adapter, Multiplexer and Scrambler

Product Overview

GOSPELL's GM-2730 series is a multifunctional Network Adapter which performs the adaptation of interfaces between ASI and Gigabit Ethernet, and then multiplex and scramble the MPEG transport streams before sending to local headend system or Ethernet transport network.

The GM-2730 series adopts GOSPELL's flexible licensing mechanism for scrambling functions, with one 100Base-T Ethernet interface available for connection to the conditional access system(CAS) as well as to the network management system(NMS).

This flexibility and versatility enables operators to reduce total cost of ownership. It can be widely applied to central head-end and remote headend system in CATV, DTT and SATV networks.

GM-2730 Network Adapter Family

Model Number	Application
GM-2730M	ASI to IP Adapter
GM-2730N	IP to ASI Adapter
GM-2730S	ASI+IP to IP Adapter
GM-2730X	ASI to IP, IP to ASI

Main Features

- Supports various network interface conversion, TS pass-through, multiplexing and scrambling
- Multiple adapter options: ASI to IP, IP to ASI, both IP to ASI and ASI to IP
- Up to eight ASI inputs (or outputs)
- TS-over-UDP/RTP input or(and) output, supporting MPTS/SPTS
- Flexible configurations with module authorization management system
- Up to 24 multiplexing channels and multiplexing up to 512 programs
- Supports SD and HD programs
- Supports up to four DVB SimulCrypt CAS (except for GM-2730S)
- Complies with DVB-CSA, scrambling up to 256 programs
- Supports various customizable PSI/SI table extraction and manual insertion
- PID filtering, pass-through, PCR auto-correction
- Real-time statistics and analysis of program bit rates
- Front panel control and LCD display
- Web and SNMP management for local and remote management and maintenances

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Benefits

Versatile functions

The GM-2730 series features versatile functions in an 1RU chassis, including SD/HD TV program transport stream(TS) pass-through, remultiplexing, scrambling (optional function, GM-2730S is not available) and interface conversion available from ASI to IP, IP to ASI, both IP to ASI and ASI to IP.

These functions enable the operator to reduce costs on TS multiplexer and scrambler as it reduces the amount of Headend equipment that's required, especially for remote headend systems.

With the IP input or output options, the operator can take full advantage of existing IP wired or wireless telecom backbone to delivers video TS for either TS ingesting or TS uploading, but not limited to expensive leased satellite links any more.

High Performance

The GM-2730 series combines a high performance multiplexer with a maximum 512 of processing capability for TV programs, including PID filtering and remapping, insertion and generation of PSI/SI tables.
The GM-2730 optional scrambler supports up to four DVB SimulCrypt CAS from different CAS vendors, and is integrated with industry-leading CAS vendors. Its an ideal solution for multiple-system operator(MSO) enabling them to provide distinct services to their custormer.

Smooth Migration from ASI to All-IP headend

The GM-2730M ASI to Gigabit Ethernet(GbE) adapter enables operators to cost-effectively migrate legacy ASI headend equipment to IP-based headend system, It can deliver highly reliable conversion of transport streams from legacy ASI output IRDs and encoders, to an IP-based local headend or remote transport network. With GM-2730M, there is no need for operator to replace an existing conventional ASI headend with new all-IP headends.

Easy-To-Use Network Management

Local and remote configuration, monitoring and software upgrades can be realized easily by employing Web browser and SNMP-based network management. The series enables the operator to reduce operation and maintenance costs with minimum investment on manpower.

Rear Panel View (For reference only)

GM-2730M/N/S/X

Technical Specifications

Input Options

IP Input (GM-2730N, GM-2730S, GM-2730X)

Number of Input	1 x 100/1000Base-T Ethernet
MPEG TS Format	7 x 188 Bytes
IP Encapsulation	MPEG TS-over-UDP/RTP
MPEG TS	MPTS and SPTS
Maximum Number of TS Input	GM-2730N: 250 TS GM-2730S: 120 TS GM-2730X: 4 TS
Effective Bandwidth	800Mbps (maximum)
Addressing	Unicast, Multicast(IGMPv1, IGMPv2)
Connector Type	RJ-45

ASI Input (GM-2730M, GM-2730S, GM-2730X)

Number of Input	GM-2730M: 6(or 7/8) x ASI GM-2730S: 8 x ASI GM-2730X: 4 x ASI
Data Format	188/204 Bytes MPEG-TS packet length One SPTS/MPTS per ASI interface
Input Bit Rate	1.5-100Mbps each, max. 800Mbps in total
Connector Type	BNC (Female, 75Ω)

Output Options

ASI Output (GM-2730M, GM-2730N, GM-2730X)

Number of Output	GM-2730M: 1 (or 2) x ASI GM-2730N: 8 x ASI GM-2730X: 2 x ASI and 2 x ASI Duplicate Output
Data Format	188/204 Bytes MPEG-TS packet length One SPTS/MPTS per ASI interface
Input Bit Rate	1.5-100Mbps each, max. 800Mbps in total
Connector Type	BNC (Female, 75Ω)

IP Output (GM-2730M, GM-2730S, GM-2730X)

Number of Output	GM-2730M: 1 x 100/1000Base-T Ethernet GM-2730S/X: The output GbE and input GbE share with one 100/1000Base-T Ethernet interface, supporting input and output simultaneously.
MPEG TS Format	7 x 188 Bytes
IP Encapsulation	MPEG TS-over-UDP/RTP
MPEG TS	MPTS and SPTS
Maximum Number of TS Output	GM-2730M:16 TS GM-2730S: 450 TS GM-2730X: 4 TS
Effective Bandwidth	800Mbps (maximum)
Addressing	Unicast, multicast (IGMPv1, IGMPv2)
Connector Type	RJ-45

TS Re-multiplexing

Capacity of Processing	24 Multiplexing channels Up to 512 programs
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

TS Scrambling (License Options)

Scrambling Algorithm	Comply with DVB-CSA
Numbers of CAS	Optional up to four DVB SimulCrypt CAS
CAS Standard	ETSI TS 103 197
CAS Interface Protocol	TCP/UDP (via Network Management Port)
EMM Bandwidth	Up to 3 Mbps
Scrambling Level	Program-level
Scrambling Capability	Up to 256 programs

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 Supply Receptacle (AC Input) 1 x Power switch

Power Supply

Input Voltage	90-250 VAC, 50/60Hz
Power Consumption	GM-2730M/N: 50W (Typ.) GM-2730S/X: 35W(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 450mm 19'' x 1.73'' (1 RU) x 17.7''
Product Weight	Approx. 5Kg (11 lbs)

Ordering Information

Hardware Options

Ordering Codes	Product Usage	Interface List				NM[1]	PT[2]	MUX[3]	Numbers of MPEG TS-Over-IP		CA
		Number of Input Interfaces		Number of Output Interfaces							
		GbE	ASI	GbE	ASI				Input	Output	
GM-2730M1	ASI to IP Adapter		8	1		1	Yes	Yes		16	Optional
GM-2730M2	ASI to IP Adapter		7	1	1	1	Yes	Yes		16	Optional
GM-2730M3	ASI to IP Adapter		6	1	2	1	Yes	Yes		16	Optional
GM-2730N	IP to ASI Adapter	1			8	1	Yes	Yes	250		Optional
GM-2730S	ASI+IP to IP Adapter	1[4]	8	1[4]		1	Yes	Yes	120	450	No
GM-2730X	ASI to IP, IP to ASI	1[5]	4	1[5]	2*2[6]	1	Yes	Yes	4	4	Optional

Notes:

Function remark: **Yes**=Feature available by default;   **No**=Not available;   **Optional**= Feature available by following software licenses.

(1) **NM**: Network Management Interface;   (2) **PT**: Pass Through;   (3) **MUX**: Multiplexing.

(4)(5) The **input GbE** and **output GbE** share with one 100/1000Base-T Ethernet interface, supporting input and output simultaneously.

(6) 2*2 stands for 2 x ASI independent output and 2 x ASI duplicate output

Software License Options

License Codes	Descriptions
LC-2730- MUX-CA1	Enable scrambling function, supporting one DVB Private Crypt CA
LC-2730- MUX-CA2	Enable scrambling function, expand to two DVB SimulCrypt CA(s)
LC-2730- MUX-CA3	Enable scrambling function, expand to three DVB SimulCrypt CA(s)
LC-2730- MUX-CA4	Enable scrambling function, expand to four DVB SimulCrypt CA(s)

For More Information

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