

QAM Module for Luminato platform

Quad QAM module for Luminato platform

The QAM module enables flexible multiplexing of SPTS and MPTS video services and also PSI/SI table streams. High quality QAM modulation with agile up conversion provides easy adaptation to DVB-C delivery over HFC-network.

Versatile functionality

The Teleste Luminato quad QAM modules provide an advanced DVB-C platform for Cable TV operators. The QAM module enables flexible multiplexing of SPTS and MPTS video services and also PSI/SI table streams. High quality QAM modulation with agile up conversion provides easy adaptation to DVB-C delivery over HFC-network.

The Luminato quad QAM multiplexers support selection of free-to-air and scrambled services from IP stream sources, which can be adjusted to the operator's service line-up with the built-in advanced transport stream processing capabilities. The Luminato quad QAM module support Standard Definition, High Definition and 3D video in MPEG-2 and MPEG-4 AVC video formats and numerous audio formats. Optionally content protection can be done based on DVB simulcrypt standard.

Effective flexibility

Luminato quad QAM module is fully compatible with the high-performance

Luminato chassis, where it can be fitted freely to any of the six module slots. In accordance with the Luminato system architecture, the video processing is performed on the quad QAM modules, which enables low-cost applications even with partially equipped chassis, while having the performance scalability to fully equipped chassis.

Complete cable TV headend in 1 RU

As one or more Quad QAM modules can be included in 1 RU Luminato platform with Luminato DVB-S, DVB-S2, DVB-ASI, DVB-T, DVB-T2 and DVB-C receivers, together they can form a complete cable TV headend. Furthermore, this provides effective way for complementing service bouquet with locally received content in the edge of the network.

Embedded content protection

Quad QAM module has the optional capability to do DVB Common Scrambling Algorithm content protection. The embedded scrambling doesn't require any additional hardware and the user can freely select which services will be scrambled. The component level scrambling is also supported to allow only video and audio scrambling and leave other streams untouched to avoid descrambling challenges for bursty data in set-top box.

Efficiency and reliability

With the advanced transport stream processing, operator can select the services and components which are relevant to his network. The Luminato will follow-up any changes on the stream to automatically readjust the processing to provide uninterrupted service. This will allow the operator to efficiently manage network capacity usage.

The available tools provide high degree of automated features to minimise the cost of system set-up and operation, and avoiding downtime due to changes in the received services.



Block Diagram, Quad QAM Out

Features

- DVB TS over UDP/IP, RTP/UDP/IP
 reception
- IP address / UDP port selector for input streams
- Network dejittering
- Support CBR and VBR TS
- Support SPTS and MPTS multiplexing
- Advanced transport stream processing
- PCR processing
- Multiplexing
- DVB CSA content protection
- Automatic PSI/SI table generation
- Custom PSI/SI creation and streaming
- High quality QAM modulation
- Agile upconversion
- MPEG transport stream over UDP/IP and RTP/UDP/IP streaming
- Multiplex IP streaming (VBR or CBR)

Technical specifications

Parameter	Specification	Note	Parameter	Specification	Note
IP inputs Frame formats TS packet per UDP frame Max inputs streams/module Dejittering buffersize	UDP/IP, RTP/UDP/I 17 120 200 ms	þ	Out of band noise, ³) Harmonics	<-58,5 dBc <-62 dBc <-64 dBc <-66 dBc -70 dBc <-60 dBc	1 st adj. channel 2nd adj. channel 3rd adj. channel other channels other channels, 4)
Multiplexers			MER	>43 dB	LQM-A, LQM-C
Number of multiplexer Max input service/multiplexer Max components per service Output speed	4 120 32 depends on QAM modulator settings		IP streamer output of multip Framing format Traffic type TS format	streamer output of multiplexer raming format UDP/IP, RTP/UDP/IP raffic type unicast or multicast S format CBR, VBR	
DVB Common Scramoling Algorithm Content Protection			Max 15 packet speed/streame	250 Mb/c	M output speed
Max scrambled services			Maximum speed total	200 10/5	shared with 4 outputs
per module	120	LQM-A, LQM-C	General		
QAM Output			Power consumption 15 W		
Standard QAM constellations Symbol Rate Impedance Output return loss Output Level	ITU-T J.83 Annex A 64, 128, 256 47,4 MS/s 75 ohm >14 dB >12 dB >10 dB 102 112 dBµV 104 114 dBµV 106 116 dBµV 110 120 dBµV	and C active channel act. ch 81862 MHz act. ch 8621000 MHz Four adj. channels Three adj. channels Two adj. channels One adj. channel	Supply voltages Connectors, DVB-C RF Out Dimensions Weight Enclosure classification Operating temperature range Storage temperature range Specification is met Notes 1) Dimensions excluding conn	24 V F 20 x 109 x 253 mm (HxWxD), ¹) 0,4 kg IP21 -10+55 °C -30+70 °C 0+45 °C	
Output Level accuracy Output Power step size Output center frequency Output frequency accuracy Output frequency step size	+/- 2 dB 0,2 dB 85999 MHz +/- 30 kHz 50 kHz	one doj, chomer	 ³) Values for quad channels active. Excluding harmonics 4) Typical value outside 100 MHz of active channel block 		

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