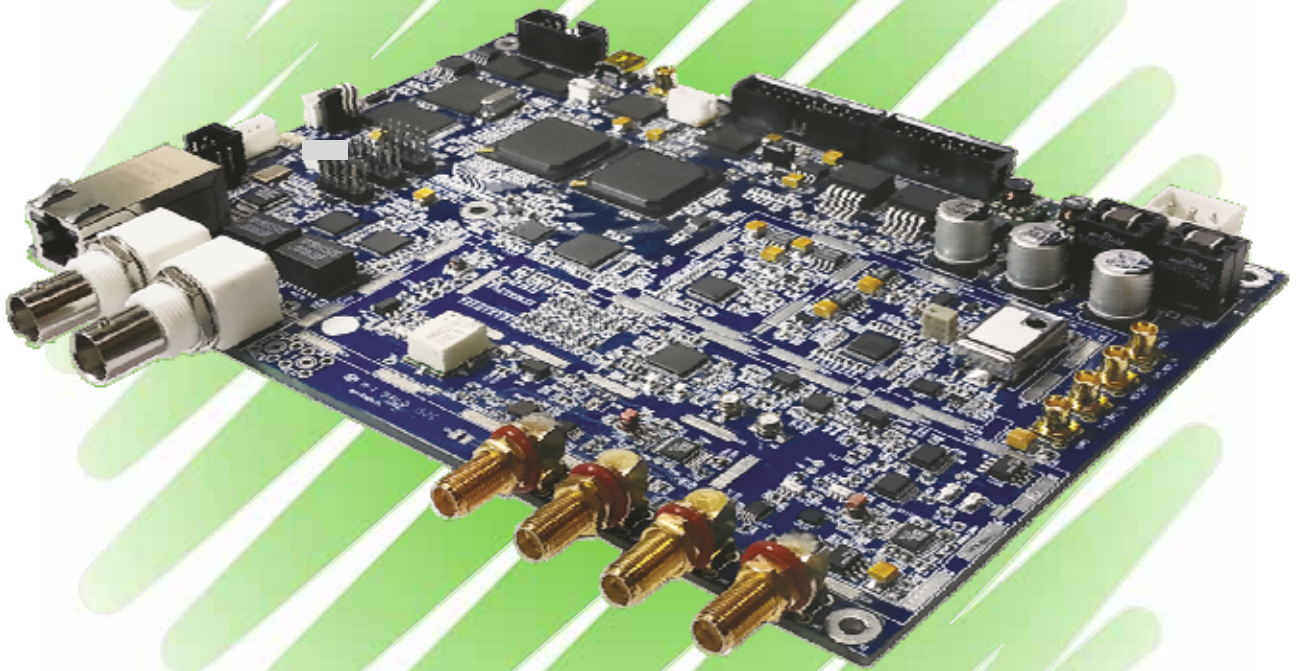# INT-OEM2000

DVB - S/S2
MODULATOR BOARD

Key Features

- *New generation modulator for satellite broadcasting in compliance with DVB-S/DSNG and DVB-S2/S2x*
- *Suitable for DTH broadcasting, video contribution/ distribution applications over satellite or microwave links.*
- *Data rate up to 200 Mbit/s equal to 10 HD or 40 SD quality H.264 video programs*
- *Optional BISS content protection*
- *RFI reduction using optional DVB RF Carrier ID (DVB-CID)*
- *Transport Stream over IP input*
- *Single voltage 5V DC supply*
- *All-in-one single board and compact hardware*
- *Full control and monitoring through RS485 and Ethernet interfaces*

General information

INT-OEM2000 as an OEM modulator for satellite broadcasting fully compliant with DVB-S/S2 standards. Great level of reliability and excellent performance of this system is the outcome of several years of experience and proven expertise of Intech Company in manufacturing modulators for satellite broadcast applications.
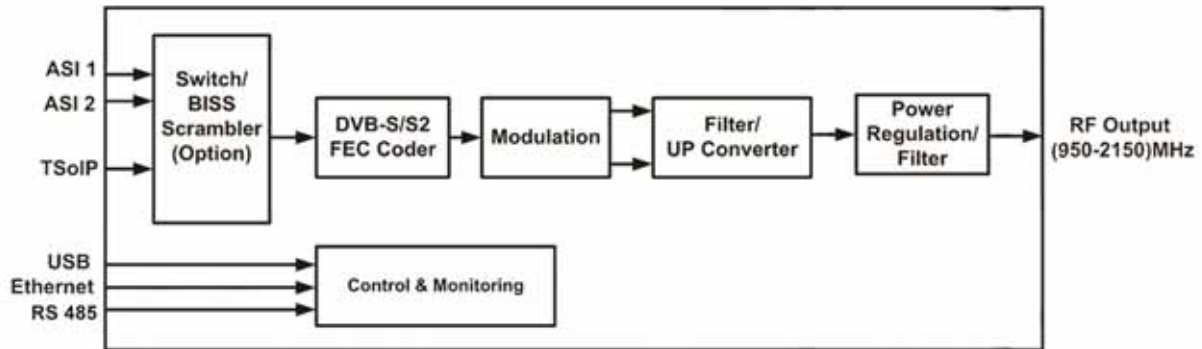
INT-OEM2000 currently supports all transmission modes defined in DVB-S2 and parts of DVB-S2x standard. The maximum throughput of this modulator is currently 200Mbps. Such a significant capacity makes it possible to transmit 40 SD quality or 10 HD quality video programs coded by H.264 via a single transponder which is a significant ability for broadcasters. Taking advantage of novel techniques and extensive simulations in designing the RF analog front-end of this product has caused the output signal spectrum to be free of any spurious components and at the same time having a very low noise floor. The excellence of RF performance guarantees the lowest possible modulation errors in all operating modes and subsequently a crystal clear signal is generated at the output of the modulator on L band frequencies.

INT-OEM2000 which is specifically designed to be integrated in systems with highest simplicity is developed with an advanced feature set. One is the ability to perform BISS encryption on input TS components prior to transmission. This modulator also fully supports TSoIP and special care was taken to cope with jittery transport streams over IP. Another remarkable feature is the DVB-CID as a means of uplink station identification. This mechanism plays a vital role in interference source recognition in satellite networks.

It should be noted that the hardware of INT-OEM2000 is designed based on future extendibility. Hence achieving higher transmit bitrates or implementing new features including

multiple TS input along with variable coding and modulation (VCM) mechanism in DVB-S2 is possible just with a simple firmware update in the future.

Simple integration and high flexibility along with compact size and economic price suits INT-OEM2000 perfectly as a comprehensive OEM solution for both satellite uplink or microwave video link applications.

INT-OEM2000 Block Diagram

Technical Specifications:

Inputs

ASI Inputs	2xBNC, 75 Ω, DVB-ASI, 188/204 bytes, Bitrate up to 200Mbit/sec
TSOIP Input	1xRJ45 TS over IP Input Based on SMPTE-2022, Bitrate up to 80Mbit/sec
10 MHz Reference Input	1xBNC, 50 Ω, 500mVpp÷5Vpp

L-Band output

Main Connector	1x SMA (F), 50 Ω	
Monitoring Connector	1x BNC (F), 50 Ω, Coupling factor: -25dB	
Frequency	950 to 2150 MHz, step 10 Hz	
Level	-30 to +2dBm (±0.5dBm), step 0.1dB	
Return Loss	≥14dB	
Out of band Spurious Emissions	<60 dBc	
Phase Noise	10 Hz	<-55 dBc/Hz
	100 Hz	<-75 dBc/Hz
	1 kHz	<-85 dBc/Hz
	10 kHz	<-90 dBc/Hz
	100 kHz	<-90 dBc/Hz
	1 MHz	<-115 dBc/Hz

Supported Modulation Schemes

DVB-S2 Standard

Complying Standard:	EN302307
Constellations:	QPSK, 8PSK, 16APSK, 32APSK
Inner coding rates:	
QPSK:	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
8PSK:	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
16APSK:	2/3, 3/4, 4/5, 5/6, 8/9, 9/10
32APSK:	3/4, 4/5, 5/6, 8/9, 9/10

Pilots:	ON or OFF
FEC Frames:	Normal (64,800), Short (16,200)
Roll-off Factor:	0.35, 0.25, 0.20, (0.15, 0.1, 0.05 DVB-S2x option)
Baud Rate Range:	0.5 – 45 Mbaud
Packet Stuffing:	TS null Packet insertion with PCR correction or dummy PLFRAME insertion

DVB-S/DSNG Standards

Complying Standards:	EN 300 421, EN 301 210
Constellations:	QPSK, 8PSK
Inner Coding Rates:	
QPSK:	1/2, 2/3, 3/4, 5/6, 7/80
8PSK:	2/3, 5/6, 8/9
Roll-off Factor:	0.35, 0.25
Baud Rate Range:	1 – 40 Mbaud

DVB-CID

| Complying Standards: | ETSI TS 103 129 |

Control and Monitoring

| Connection Port | RJ45 (10/100 Base-T), RS485, RS232 |
| Interface Protocol | WEB & SNMP v1/v2/v3 (Over Ethernet), MODBUS (over RS485, RS232) |

Power Supply

| Operating Voltage: | 5.5V dc |
| Power Consumption: | ≤20W |

Physical

| Dimensions (W x H x D) | 19 cm x 2.5 cm x 13.5 cm |
| Weight | 350 g |

Environmental

Operating Temperature	0° C to +50° C
Storage Temperature	-25° C to +60° C
Relative Humidity	max. 95%, non-condensing

How to Order:

INT-2000OEM – *DVB-S/S2 OEM Modulator Board*