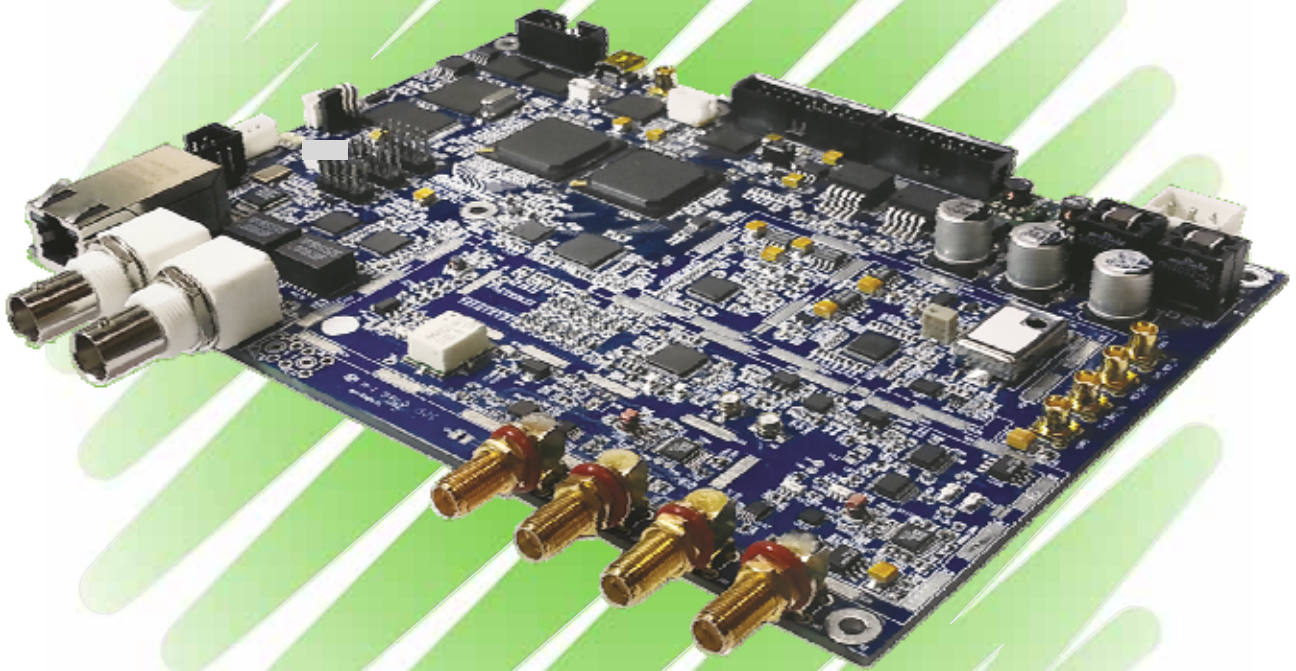


INT-OEM1000



DVB-T/2xT/T2
MODULATOR BOARD

Key Features

- Capable of transmitting one DVB-T2 or two independent DVB-T signals at the same time.
- In full compliance with the latest version of EN300744 (DVB-T) and EN302755 (DVB-T2) standards.
- Cutting edge adaptive corrector for maximizing the transmitter efficiency.
- Supporting TS over IP and T2MI over IP as modulator input.
- Full analysis of transmitter output signal and measurement of key parameters including MER, shoulder distance, frequency response and providing the results via RS485 and web interface.
- Capable to extract time and frequency references through NTP servers for SFN operation.
- Equipped with OCXO for superior signal quality according to the customer order as an option.
- Equipped with web interface for control and monitoring purposes and software upgrading.

General information

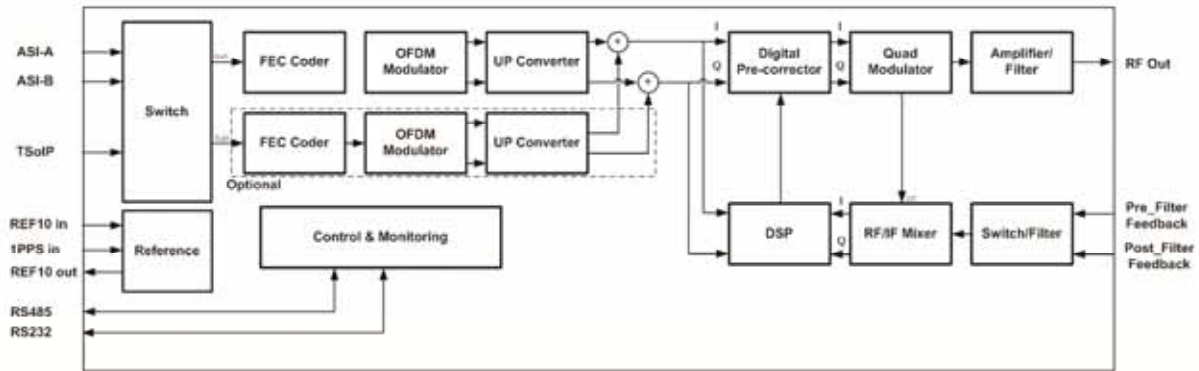
Intech presents INT-OEM1000 as an OEM modulator for terrestrial broadcasting fully compliant with DVB-T/T2 standards. Great level of reliability and excellent performance of this system is the outcome of several years of experience and proven expertise of Intech in manufacturing modulators for broadcast applications.

Thanks to novel hardware architecture INT-OEM1000 is a dual core modulator which makes it possible to transmit two transport streams simultaneously on two distinct channels with just one transmitter. This outstanding feature is considered as a unique capability in comparison with similar professional products available in the market.

INT-OEM1000 is equipped with broad range of mechanisms to become a competent option as the exciter of television transmitters with output power up to tens of kilowatts. Adaptive pre-corrector is the most remarkable mechanism of this modulator which eliminates distortions and restores signal quality while it is amplified with high efficiency power amplifiers. Correction algorithms implemented in this modulator are based on the latest research achievements in this area and field tests totally proves its superb performance independent of the type of amplification technology or the output power of amplifiers.

Taking advantage of newest analog techniques and wide simulations in designing the RF front-end of this product has caused the output signal spectrum to be free of any unwanted components and at the same time having a very low noise floor. This fact has dramatically reduced the modulation errors in all operating modes and is another factor in achieving high signal quality at the output of the transmitter.

Simple integration and high flexibility along with compact size and economic price has caused INT-OEM1000 to be considered as a comprehensive solution for manufacturing television transmitters.



INT-OEM1000 Block Diagram

Technical Specifications:

Inputs

ASI Inputs	2xBNC, 75 ohms, Complying EN50083-9
TSoIP Input	1xRJ45 TS over IP input based on SMPTE-2022
10 MHz Reference Input	1xMCX, 50 Ω, 500mVpp~5Vpp
1 PPS Reference Input	1xMCX, 50 Ω, LVTTTL
Pre-Filter Feedback Input	1xSMA, 50 Ω, -10~10 dBm
Post-Filter feedback Input	1xSMA, 50 Ω, -10~10 dBm

Output

RF Output	1xSMA, 50 Ω, Frequency Range: 470-862 MHz (Resolution: 1 Hz), available
RF Monitoring Connector	1xSMA, 50Ω, Coupling factor: 20dB
10MHz reference output	1xMCX, 3.3V CMOS

Qualitative Parameters

MER (rms)	> 40 dB, Typically 42dB	
Shoulder Attenuation	> 50dB, Typically 57dB	
Output PAPR	Adjustable in 7 to 12dB range	
In-band amplitude variation	<0.3dB	
In-band group delay variation	<10ns	
Out of band spurious emissions	<60 dBc	
LO Phase Noise	10 Hz	<-55 dBc/Hz
	100 Hz	<-85 dBc/Hz
	1 kHz	<-90 dBc/Hz
	10 kHz	<-95 dBc/Hz
	100 kHz	<-112 dBc/Hz

Modulation Standard (DVB-T)

Number of Modulation Cores:	Up to Two DVB-T Cores (EN 300 744 compliant)
Output Channel Spacing:	All channels within 24MHz Bandwidth (Dual Output Mode)
Transmission modes:	MFN, SFN
IFFT:	2K, 4K, 8K
Constellations:	QPSK, 16QAM, 64QAM
Guard interval:	1/4, 1/8, 1/16, 1/32
FEC:	1/2, 2/3, 3/4, 5/6, 7/8 (For Both LP & HP Stream)
Interleaving:	Native, In Depth
Hierarchical mode:	Supported, Mapping α=1,2,4
Maximum Throughput:	31.67 Mbps at each modulator
Bandwidth:	8 MHz, 7 MHz

Modulation Standard (DVB-T2)

Transmission modes:	MFN, SFN-SISO, SFN-MISO
Modulation modes:	Single PLP, Multi-PLP
IFFT:	1k, 2k, 4 k, 8k, 8k Extended, 16k, 16k Extended, 32k, 32k Extended
Constellation:	QPSK, 16 QAM, 64 QAM, 256 QAM (Normal and Rotated)
Guard Intervals:	1/128, 1/32, 1/16, 19/256, 1/8, 19/128, 1/4
FEC:	1/2, 3/5, 2/3, 3/4, 4/5, 5/6
Interleaving:	Time, Frequency, Cell
Maximum Throughput:	50.34 Mbps
Bandwidth:	8 MHz

Digital Adaptive Pre-Correction

Pre-correction modes:	Single output: Adaptive LC, Adaptive NLC Dual output: Fixed NLC
Correction criterion:	MER, Right/Left shoulder, Group delay, In-band flatness
Crest Factor Reduction (CFR):	Soft and Hard Clipping
NLC Performance:	Typically 10dB MER Improvement (Dependent on PA model)
LC Performance:	Up to ± 5 dB amplitude and ± 500 ns group delay correction

Control Interface

Connection port	RS485, RS232
Interface Protocol	MODBUS

Power Supply

Operating voltage	5.5 Vdc
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-OEM1000 – *DVB-T/T2 OEM Modulator Board*

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