

PT2082 DVB-T2 Modulator

Key Features:

- Single and multiple Physical Layer Pipe (PLP)
- Multiple-Input Single-Output (MISO) processing
- MFN and SFN operations
- Onboard GPS
- Linear and Non-Linear Digital Adaptive Pre-corrections
- Extremely high modulation performance
- Future-proof industrial platform



The **PT2082, DVB-T2 Modulator** is based on the ProTelevision generic industrial platform PT2000 and developed through the long experience of ProTelevision to ensure a product with top performance. The design offers a future-proof solution for a broadcasting network and all operations (configuration and monitoring) are carried out through the remote interface (Webservice/HTTP, SNMP Client Get/Set/Trap and RS232/SCPI) which also enables on-line SW/FW upgrade via Ethernet. The output of the PT2082 is delivered on a user selectable frequency in the range of 30 MHz to 1000 MHz, in steps of 1 Hz. The spectrum bandwidth is selectable between 8, 7, 6, 5 and 1.7 MHz.

Addition of the successful ProTelevision adaptive pre-corrector solution PT2754 will enhance the ease of operation further by providing continuous automatic optimization of the transmitter performance, results in superior MER performance and shoulder level suppression.

Application

The typical application for the PT2082 DVB-T2 Modulator is to work in combination with any third party RF power amplifier.

The PT2082 is available with extensive front control, blank front panel or as an OEM solution (PCB board, 220 x 100mm).

DVB-T2

DVB-T2 offers new channel bandwidths, guard Intervals, FFT modes and incorporates the latest developments in modulation and error-protection to increase the bit-rate capacity and improve signal robustness.

The specification has the additional flexibility provided by the choice of eight scattered pilot patterns that can be selected based upon the FFT size and Guard Interval fraction to maximize the data payload.

Addition of the 256 QAM mode in the specification allows for the ability to increase the number of bits carried per data cell which gives a major capacity boost. Rotated constellations provide a significantly improved robustness due to the achievement of unique values of constellation points on the I and Q axis.

Extended carrier mode in DVB-T2, for the FFT size of 8K, 16K and 32K, provides additional capacity improvement. This is done by adding carriers on each side of the spectrum to use the channel more efficient.

Multiple Physical Layer Pipes (PLPs) allows for independent and flexible operation with multiple service providers. This mechanism makes it possible to adjust the robustness of each separate service for the required reception conditions, i.e. one PLP may be used for HD services for fixed reception and another for portable indoor reception.

Signal processing

Supported modes

IFFT:	1K, 2K, 4K, 8K, 16K and 32K including extended carrier modes
Guard intervals:	1/4, 19/256, 1/8, 19/128, 1/16, 1/32 and 1/128
Constellations:	QPSK, 16-QAM, 64-QAM and 256-QAM, rotated constellations supported
Code rates :	1/2, 3/5, 2/3, 3/4, 4/5, 5/6
Network modes:	MFN and SFN
Bandwidth:	8 MHz, 7 MHz, 6 MHz, 5 MHz and 1.7MHz
Time interleaving	Adjustable
Test modes	Comprehensive test signal support such as; Single tone, PRBS, SFN etc.

Electrical specifications

Inputs

ASI inputs

No of ASI inputs:	2
Connector:	BNC
Input impedance:	75 Ω
Return loss:	> 13 dB
Redundancy	User selectable switching policy between "Primary" and "Secondary" ASI source

TSolP input

No of TSolP inputs:	1
Connector	RJ45

Internal GPS

Connector:	TNC 50 Ω
Frequency:	1.575 GHz
Antenna net gain range:	0 to +32 dB
Antenna:	Passive or active antenna
Antenna DC supply:	OFF, 3 Vdc or 5 Vdc (± 0.5 V) – selectable via SW
Antenna DC current:	max 50 mA

External Clock reference

(carrier frequency and SFN timing):

Connector:	BNC
Frequency:	10 MHz
Level:	100 mV-3 Vpp
Impedance:	50 Ω / > 1 k Ω , user selectable
Time reference (SFN timing):	
Connector:	BNC
Frequency:	1 PPS
Level:	0-5 V
Trigger:	Selective rising/falling
Impedance:	50 Ω / > 1 k Ω , user selectable

Output

RF-output

Connector:	N, 50 Ω
Center frequency:	Adjustable 30-1000 MHz in steps of 1 Hz

Frequency stability:

Spectrum polarity:	
Level:	
Stability:	
Return loss:	
Spectrum outside band:	
+/-3,8 MHz:	
+/-4,25 MHz:	
+/-5,25 MHz:	
Harmonics and spurious:	
MER:	

Control Interface

Ethernet interface

Connector:
RS232/RS485 interface

Connector:	
HW interface:	
Output:	

Input:

Power supply

Voltage:	100 - 240 VAC
Frequency:	47-63 Hz
Consumption:	Max. 75 W

Environmental Specification

Climatic Temperature range operating:	-5 °C to +50 °C (+23 °F to +122 °F)
Temperature range within specs:	+5 °C to +45 °C (41 °F to +113 °F)
Temperature range storage:	-30 °C to +70 °C (-22 °F to +158 °F)
Humidity operating:	max 90% RH
Humidity storage:	max 90% RH
EMC	Compliant to EN50022 (emission) and EN55024 (immunity)
Safety	Compliant to EN60950-1
RoHS	Compliant with directive 2002/95/EC

Mechanical Specification

Cabinet:	19" wide, 1RU high
Width:	(19")
Height:	44 mm (1.75")
Depth:	483 mm (19")
Weight:	6 kg (16 lbs)
Cooling:	Long life fans to assist natural convection
Transport and storage:	Vibration acc. to IEC Publ.68

Intern ref 1 ppm/or in accordance with extern ref accuracy
Inverted and non-inverted selectable
+ 0 dBm (adjustable +0/-10 dB)
 ± 0.5 dB
> 16 dB

0 dB
< 48 dB
< 56 dB
< -50 dBm below 1 GHz designed to meet 45 dB

RJ45 (1 on front, 2 on back)

9-pin SUB-D Male
Connector: 15-pin SUB-D Female
Two user programmable alarms via separate floating relays, common make-break contacts, contact rating 60 V/0.2 A (5 W max)
Separate Reset control and Output muting control, activated by ground closure.

Basic modulators

PT2082/00	DVB-T2 modulator base unit, blank front	9449 020 82001
PT2082/10	DVB-T2 modulator base unit, with front ctrl	9449 020 82101
Options, software		
PT2754	Adaptive digital Pre-corrector	9449 027 54001
PT2711	GPS	9449 027 11001
Options, hardware		
PT2710	Precision OCXO, 0,0001 ppm*	9449 027 10001
PT2730	Satellite receiver card*	9449 027 30001
PT2740	20 dBm output amplifier*	9449 027 40001

* Factory installation only

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