The PT3182 DVB-T2 OEM ProTelevision Technologies’ Software defined modulator, provides maximum integration flexibility for transmitter manufacturers.

The remarkable performance and robustness of the PT3182, makes it the perfect choice for your VHF and UHF DVB-T/T2 transmitters.

**Future proof technology** based on a fully reconfigurable, *software defined* modulator platform, that allows upgrading of the board to other DTT standards (ISDB-T/Tb, DVB-T/T2 or ATSC 1.0).

- Interface B input mode for support of MFN, SFN *(MISO and SISO)*, single PLP and Multiple PLP DVB-T2 transmission based on T2-MI
- Optional Interface A input mode for standalone support of DVB-T2 in MFN single PLP mode with legacy MPEG-2 TS input.
- High performance *digital adaptive linear and nonlinear precorrection* for maximum transmitter performance (Option PT3754).
- User friendly intuitive *WEB GUI* control for use with standard Web Browser (Internet Explorer, Mozilla Firefox, Google Chrome and Opera compatible).
- *SNMP* client Get/Set/Trap.
- SCPI control over RS232/RS485 and over IP.
- 4x Ethernet Gigabit interfaces for control and data transport. Two of them optimized for TSoIP Input (Option PT3720/00).

**OPTIPOWER®** – market leading enhanced adaptive precorrection and PAPR clipping technology for maximum optimization of transmitter power efficiency and/or transmitter MER performance (Option PT3756).

- Integrated Multi Standard Global Navigation Satellite System (GNSS) receiver for time and frequency reference based on GPS and GLONASS systems (Option PT3711).
- **VHF and UHF** (selectable frequency from 30MHz to 860 MHz in steps of 1Hz).
- Power Supply acceptance range: from 5V to 52V. That allows the usage of existing power supply mounted in the system.
- Three choices of internal precision *(Local Oscillator)* according to the network requirements 2ppm, 0.25ppm or 0.01ppm.
- Power Output selectable from -10dBm to +10dBm in steps of 0.1dB.
- Available SW based *Automatic Level Control* to regulate any third party power amplifier output. (Option PT3770/00).
- Seamless switching between any of the ASI and/or IP inputs.

Available in different versions:

- PT3180 DVB-T/H OEM Modulator
- PT3182 DVB-T2 OEM Modulator

And by installing the license “PT3726 DVB-T & DVB-T2 Support” to any of the above products, we get a DVB-T/T2 configuration holding both DTT standards on one board.

The Hw is 220 x 100 mm open PCB for seamless integration into an exciter/transmitter solution.

For a 19” Rack Solution, please check the product PT3082 on ProTelevision’s Website.
Optipower is a ProTelevision Technologies’ proprietary solution developed to provide an increase of quality (MER) and efficiency to new or existing TV transmitters.

Optipower consists of:

1) Enhanced Nonlinear Precorrection algorithm with DEEP MEMORY EFFECTS based on the Volterra polynomial series.
2) Adaptive PAPR clipper.

These two adaptive mechanisms, allow achieving the maximum MER value on any transmitter system (VHF, UHF, Class AB, Doherty, etc..) compared with other precorrection solutions on the market.

This MER extra increase, can be used to enhance the overall efficiency of the transmitter system.

In addition, ProTelevision Optipower (Option PT3756) will provide live measurements on the WEB Graphical User Interface: Shoulders, MER, PAPR, MER vs Carrier and a Spectrum graphic on the channel transmitted (see picture).

Main specifications for (Optipower) precorrection and feedback signals: Connectors: SMA 50 ohm // Level: -10dBm to +10dBm // Return Loss > 20dB //Frequency: 30MHz to 860MHz.
## Signal Processing DVB-T2 (PT3182)

### Supported Interface modes:

<table>
<thead>
<tr>
<th>Interface</th>
<th>Input details</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface A</td>
<td>Input of legacy MPEG-2 TS for MFN single PIP transmission (requires option PT3814)</td>
<td></td>
</tr>
<tr>
<td>Interface B</td>
<td>Input of T2-MI from external T2 gateway (single and multi PIP, MFN and SFN)</td>
<td></td>
</tr>
</tbody>
</table>

### System main characteristics

- Supported T2 versions: 1.1.1/Main, 1.2.1/Main, 1.3.1/Main and Lite
- and profiles: 1.4.1/Main and Lite
- System bandwidth: 1.7 MHz, 5 MHz, 6 MHz, 7 MHz and 8 MHz

### PLP configuration

- Number of PLPs: Single PLP only
- Interface A mode: Single PLP
- Interface B mode: Single PLP and Multiple PLP mode up to 255 PLPs equal to the maximum given by the T2 standard

### PLP payload type:

- **Interface A mode:** TS
- **Interface B mode:** TS, GSE, GCS, GFPS

### T2 frame configuration

- IFFT: 1K, 2K, 4K, 8K, 16K, 32K (including extended carrier modes)
- Guard intervals: 1/4, 1/8, 1/16, 1/32, 1/128
- Pilot pattern: PP1, PP2, PP3, PP4, PP5, PP6, PP7, PP8
- PAPR control: L1-ACE / L2-TR with T2 version 1.2.1 and 1.3.1 (HW and FW prepared for L1-ACE and ACE only, L1-ACE and TR only, L1-ACE and TR)
- U Modulation: DQPSK, QPSK, 16-QAM
- Network modes: MFN & SFN (relative & absolute timestamp, MISO/SISO)
- Test modes: Single carrier, PRBS, NULL-PI

## Electrical Specifications

### Inputs

<table>
<thead>
<tr>
<th>ASI inputs</th>
<th>No. of ASI inputs: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector:</td>
<td>Coax contact in DIN41612M_60_4 main PCB con</td>
</tr>
<tr>
<td>Input impedance:</td>
<td>75 ohm</td>
</tr>
<tr>
<td>Return loss:</td>
<td>&gt; 13 dB</td>
</tr>
<tr>
<td>Redundancy:</td>
<td>User selectable switching policy between “Primary” and “Secondary” ASI source</td>
</tr>
</tbody>
</table>

### Ethernet ports (1 Gbit/sec)

| No. of ethernet ports: 4 |
| Connector: | Quadraupple RJ45 mounted on the board |

### GNSS Receiver Input (option PT3711)

| Connector: | Coax contact in DIN41612M_60_4 main PCB con |
| Frequency: | 1.575 GHz (GPS) / 1.602-1.603 GHz (GLONASS) |
| Antenna net gain range: | 0 to +32 dB |
| Antenna: | Passive or active antenna (not included) |
| Antenna DC supply: | OFF, 3 Vdc or 5 Vdc (±5 V), user selectable |
| Antenna DC current: | max 50 mA |

### Output

#### RF-output

- **Connector:** SMA female, 50 ohm
- **Centre frequency:** Adjustable 30-860 MHz in steps of 1 Hz
- **Frequency stability:** Intern ref 2 ppm-0.01 ppm or in accordance with external ref. accuracy
- **Spectrum polarity:** Inverted and non-inverted, user selectable
- **Level:** Adjustable [-10, +10] dBm
- **Stability:** ± 0.5 dB
- **Return loss:** > 16 dB

### Spectrum outside band

- x<sup>2</sup>-3.8 MHz: 0 dB
- x<sup>2</sup>-4.25 MHz (shoulders): < -50 dB (typically -55 dB)
- Harmonics and spurious: < -55 dBc
- MER: > 45 dB (typically 50 dB)

### Internal frequency reference

- Selectable Local Oscillator for customer’s specific requirements.
- PT3710/00: TCXO 2 ppm (default)
- PT3710/10: OCVCXO 0.25 ppm (optional)
- PT3710/20: OCVCXO 0.01 ppm (optional)

## Control Interface

### Ethernet interface

- **Connector:** Quadragle RJ45 PCB connector
- **RS232/RS485 interface**
  - **Connector:** Routed via DIN41612M_60_4 main PCB con
- **HW interface**
  - **Connector:** Routed via DIN41612M_60_4 main PCB con
- **Alarm output:** Two user programmable open collector alarm lines
- **Input:** Separate Reset control and output muting control
Environmental Specifications

The environmental specifications for a solution based on the PT3182 OEM card will depend on the specific chassis solution chosen in each individual case. The values shown are for ProTelevision own rack integration solution (PT3082).

Climatic Temperature

<table>
<thead>
<tr>
<th>Range</th>
<th>Operating</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>+5°C to +50°C</td>
<td>-30°C to +70°C</td>
</tr>
<tr>
<td>within specs</td>
<td>±1°C to ±45°C</td>
<td>±22°C to ±113°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>max 90% RH</td>
<td>max 90% RH</td>
</tr>
<tr>
<td>EMC</td>
<td>Compliant to EN55022 (emission) and EN55024 (immunity)</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>Compliant to EN60950-1</td>
<td></td>
</tr>
<tr>
<td>RoHs</td>
<td>Compliant with directive 2011/65/EU</td>
<td></td>
</tr>
</tbody>
</table>

Power Supply

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Accepts all the DC range from 5V to 52V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>Max. 18 W (Typical 16W)</td>
</tr>
</tbody>
</table>

Mechanical Specification

<table>
<thead>
<tr>
<th>Open PCB</th>
<th>EURO module size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>100mm</td>
</tr>
<tr>
<td>Depth</td>
<td>220 mm (PCB footprint excluding connectors), 240 mm end-to-end including SMA and DIN connector</td>
</tr>
<tr>
<td>Build height</td>
<td>Approximately 30 mm including allowance for recommended clearance of 7 mm between PCB underside and chassis. 3D step file available</td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>Cooling</td>
<td>Designed for air-cooling. Recommended airflow along the PT3182 card is 250 l/minute</td>
</tr>
</tbody>
</table>

Ordering codes:

**OEM Modulator**
- PT3180 DVB-T/H OEM modulator
- PT3182 DVB-T2 OEM modulator

**Options, software**
- PT3720/00: 2x TSoIP interface (Gigabit)
- PT3754: Adaptive digital Pre-corrector
- PT3756: OPTIPower® Enhanced precorrection and adaptive PAPR clipper
- PT3784: Interface-A input option
- PT3783: DVB-T2 Lite Support [FEF transmission mode]
- PT3770: Automatic Level Control
- PT3726: DVB-T & DVB-T2 Dualcast Support

**Options, hardware**
- PT3771: GNSS module (GPS and GLONASS support)
- PT3710/10: Medium Precision Oscillator OCVCXO 0.25 ppm
- PT3710/20: High Precision Oscillator OCVCXO 0.01 ppm

(Data subject to alteration without notice.)