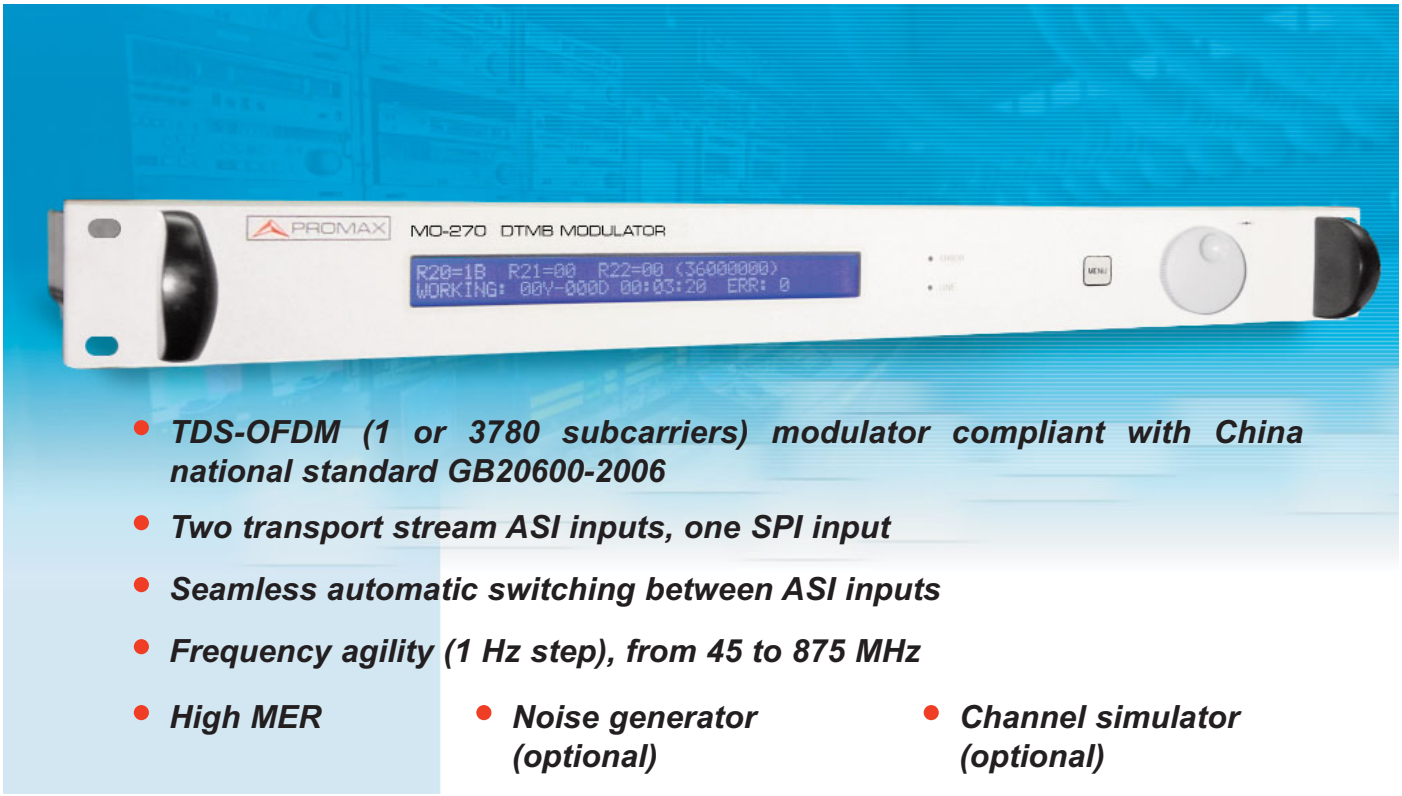
DTMB MODULATOR

MO-270



- ***TDS-OFDM (1 or 3780 subcarriers) modulator compliant with China national standard GB20600-2006***
- ***Two transport stream ASI inputs, one SPI input***
- ***Seamless automatic switching between ASI inputs***
- ***Frequency agility (1 Hz step), from 45 to 875 MHz***
- ***High MER***
- ***Noise generator (optional)***
- ***Channel simulator (optional)***

DMTB Modulator General overview

The **MO-270** is a DTMB modulator compliant with China's national standard specification for digital terrestrial broadcasting GB20600-2006. The input to the modulator is an MPEG-2 Transport Stream (TS) in SPI or ASI formats. The output from the unit is a TDS-OFDM modulated DTMB signal upconverted to IF or RF.

The modulator has been designed to achieve the maximum performance yet at an affordable price. The digital coding and modulation process is implemented with programmable logic devices using PROMAX proprietary IP. This makes the design highly flexible, allowing to tailor it to any particular application.

Detailed description

The **MO-270** is a general purpose DTMB modulator contained in a 19" 1U chassis. The unit has three selectable MPEG-2 TS inputs (two serial ASI inputs and one parallel SPI input). An additional test TS can be generated internally in the modulator. This allows to generate compliant DTMB signals even in the absence of a valid TS input.

The **MO-270** is able to work with any incoming bit rate as long as this is strictly lower than the value given in the DTMB specification for the modulation parameters in use. The input TS bit rate is adapted (bit rate adaptation) to the useful bit rate required by the DTMB signal by stuffing the TS with NULL packets (packet stuffing). This stuffing process alters the sequence of PCR values embedded in the TS. These values have to be re-stamped to minimise the PCR jitter remaining after packet stuffing.

The modulator can be configured to generate any of the transmission modes listed in the DTMB specification. Several test modes are available in the **MO-270** (blanking of carriers, single tone output, test TS generation).
The modulator is frequency agile. The user can select an RF output frequency between 45 and 875 MHz in steps of 1 Hz. The polarity of the IF/RF spectrum (inverted or non-inverted) can be selected by the user.

The operation of the **MO-270** is controlled via the front panel LCD display and controls. The modulator can be easily configured by navigating through a rather intuitive set of menus.

(*): DVB-H operation available as an option

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SPECIFICATIONS	MO-270
INPUTS	
MPEG-2 Transport Stream inputs	Two ASI inputs, female BNC, 75 Ω One SPI input, LVDS DB-25 TS packets of length 188 or 204 bytes (automatic detection) Support for burst and continuous packet mode Input TS bit rate strictly below the value given in the DTMB specification. Packet stuffing for bit rate adaptation and PCR re-stamping are carried out automatically
OUTPUTS	
36 MHz IF output	50 Ω BNC female connector. 0 dBm average power Normal or inverted spectrum In-band amplitude ripple (to be defined) Out-of-band spectral characteristics (to be defined) Central carrier suppression (to be defined) High MER
RF output	50 Ω BNC female connector Frequency adjustable between 45 and 875 MHz in 1 Hz steps Spectrum polarity selectable via the front panel controls Average power level: From an approximate minimum of 80 dBµV down to 15 dBµV in steps of 1 dB High MER Auto muting in the presence of errors
DTMB PARAMETERS	
Modulation	TDS-OFDM, 1 or 3780 subcarriers
FEC	0.4, 0.6, 0.8
Constellation	4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM
Time interleaving	240 or 720 symbols
Guard intervals	1/4, 1/6, 1/9
TEST MODES	Blank a number of carriers (start index to stop index) Generate a single carrier at the central frequency whose level equals the average TDS-OFDM output power. This is intended for signal level alignment Test Transport Stream packet generation using PRBS sequences of length 15 or 23 bits carried within NULL packets
CONTROL INTERFACE	Pushable rotary control on the front panel with navigation key and LCD display Two LEDs indicate the power and synchronisation status of the equipment Ethernet RJ-45 connector
MECHANICAL SPECIFICATIONS	
Dimensions	19” wide 1U high rack chassis Width × Height × Depth = 19” × 1.75” × 15”

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