



# SM6610 Satellite Modulator

The rise in the number of satellite transmissions continues to grow swiftly. There is demand for a reliable, high quality satellite modulator that incorporates a feature-set which caters for this growing demand. The SM6610 fulfills that requirement perfectly.

The SM6610 is a feature-rich, compact, IF output satellite modulator. The high quality IF output ensures that top quality transmissions can be achieved for all applications from DSNG to fixed location, high data rate services.

## PRODUCT OVERVIEW

### Most Common Modulation Modes

The SM6610 supports both DVB-S and DVB-DSNG modulation modes covering the most popular standards for DTH, C&D and mobile applications. The features available make this well specified product extremely flexible and capable of performing in all types of system architectures.

### Variable Symbol Rate

The SM6610's wide symbol rate range from 0.2 to 66 Msym/s makes it suitable for all applications from low bit-rate DSNG transmissions to high data rate IP backbone applications.

### High Quality IF Output

The SM6610 follows the high spec design philosophy through to its IF Output stage by offering the highest possible transmission quality. In addition, to ensure that the received signal is free from up-link generated distortions the SM6610 also provides digitally generated cable tilt correction thus removing any adverse effects created by long cable runs at the transmit location.

### Full Set of Control Methods

The SM6610 incorporates an easy to use web browser control interface as well as full control through SNMP, RS232, RS485 and Telnet sessions. For local control the SM6610 also has a simple to operate front panel control.

## BASE UNIT FEATURES

### SM6610 Satellite Modulator (SM6610/BAS)

- Operation to ETSI standard EN 300 421 - DVB-S: BPSK and QPSK
- Variable symbol rate operation: 1 to 48 Msym/s
- User selectable spectrum roll-off factor: 20%, 25%, 30%, 35%
- IF output: 50 – 180 MHz, tunable in 1 kHz steps with low spurious output levels
- Digitally generated cable tilt correction
- Two DVB ASI inputs
- Input data rate adaptation mode – including PCR correction
- Easy software upgrades for extra features
- Web Browser control and via easy-to-use front panel, SNMP, RS-232 or RS-485 remote control or Telnet

## OPTIONS

### DVB-DSNG Higher Order Modulation Option (SM66XX/SWO/HOM)

- 8PSK and 16QAM option to EN 301 210 standard in addition to BPSK and QPSK

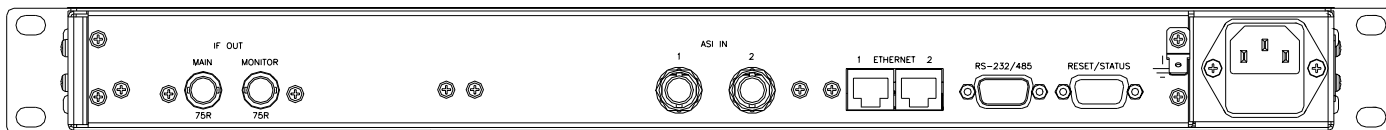
### Extended Symbol Rate Option (SM66XX/SWO/HS)

- Extends the symbol rate from 1 to 48 Msym/s to 0.2 to 66 Msym/s

### Additional Transport Stream Inputs (SM66XX/HWO/ASI-SPI)

- Additional 2 DVB ASI and 1 DVB SPI input option

## SAMPLE CONFIGURATION



## SPECIFICATIONS

## Inputs

## Transport Stream Inputs

2 x DVB ASI Copper

Rear panel connector: BNC (F), 75 Ohm

+2 x DVB ASI Copper (option)

Rear panel connector: BNC (F), 75 Ohm

## +1 x DVB SPI (option)

Rear panel connector: 25-way, D-type (F)

## Transport Stream Data Specification

## ASI Data Rate

213 Mbps maximum

## ASI Format

Byte and single packet burst mode

## Packet Size

188-byte, 204-byte, unframed

## SPI

## Data Rate

108 Mbps maximum

## Packet Size

188-byte, 204-byte, unframed

## Data Clocking Modes

Input data rate adaptation mode including PCR correction

Input data rate derived mode

## Output Specification

## IF Output

## Main IF Output

IF Frequency: 50 – 180 MHz (tunable)

## IF Frequency Step Size

1 kHz

## IF Frequency Error

±1 kHz maximum

## Output Power

-20 to +5 dBm (0.1 dB steps)

## Output Power Stability

±0.5 dB

## Impedance

75 Ohm

## Connector

BNC (F)

## Spurious Outputs

&lt; -60 dBc/4 kHz over 0-500 MHz (modulated carrier)

&lt; -55 dBc over 0-500 MHz (un-modulated carrier)

## Phase Noise

&gt; 6 dB below IESS-308 limits

## IF Monitor Output

## Output Power

-20 dB nominal relative to Main IF output power

## Impedance

75 Ohm

## Connector

BNC (F)

## Distortion Correction

## Cable Tilt Correction

±0.04 dB/MHz maximum (digitally generated)

## Modulation Features

## DVB-S and DVB-DSNG

## Signal Conditioning

EN 300 421 (DVB-S) and EN 301 210 (DVB-DSNG)

## Modulation

BPSK, QPSK, 8PSK (option) and 16QAM (option)

## FEC BPSK/QPSK

1/2, 2/3, 3/4, 5/6, 7/8

## FEC 8PSK

2/3, 5/6, 8/9

## FEC 16QAM

3/4, 7/8

## Symbol Rate

1 to 48 Msym/s  
0.2 to 66 Msym/s (option)  
variable in 1 symbol/s incrementsSpectrum Roll-off Factor  $\alpha$ 

20%, 25%, 30%, 35% user selectable

## Control

## Front Panel

2 line x 40 character LCD display

## Navigation

Four cursor keys  
Two function keys

## RS-232 / RS-485

Via RS-232/485 control port using VT100 emulator or PC control software

## Connector

9-way D-type (M)

## Ethernet

Dual-redundant 10BaseT Ethernet

Web browser control interface

Telnet/FTP

SNMP

## Connectors

2 x RJ45

## Reset/Status Port

Relay contacts for signaling equipment and input signal failure

## Connector

9-way D-type (F)

## Physical and Power

1RU, 19" rack mounting

## Mass

7.2kg approx.

## Supply Voltage

100-120 VAC and 220-240 VAC, wide ranging

## Power Consumption

Approx. 60W (dependent upon options fitted)

## Environmental Conditions

## Temperature Range

0°C to +50°C (32°F to 122°F) operational

-20°C to +70°C (-4°F to 158°F) storage

## Relative Humidity

0% - 90% (non-condensing)

## Compliance

CE marked in accordance with EU Low Voltage and EMC Directives. Standards applied: EN55022, EN55024, EN61000-3-2, EN61000-3-3 for EMC and EN60950 for Safety, as a minimum where applicable. Also meets other relevant requirements and national standards derived from international requirements on which the above European Standards are based and FCC Pt 15B. Designed to meet UL 1950.

**Global Headquarters**  
TANDBERG Television, Inc

Tel: +1 (678) 812 6300  
Email: americasales@tandbergtv.com

**Asia Pacific Headquarters**  
TANDBERG Television

Tel: +852 2899 7000  
Email: apacsales@tandbergtv.com

**Australasia**  
TANDBERG Television

Tel: +61 2 8923 0400  
Email: sales.anz@tandbergtv.com

**EMEA Headquarters**  
TANDBERG Television Ltd

Tel: +44 (0)23 8048 4000  
Email: salesdesk@tandbergtv.com  
Website: www.tandbergtv.com