



## TT1260

### MPEG-2 Standard Definition Integrated Receiver Decoder

Contribution and distribution of video services requires decoding capability of premiere quality. The wide variety of scenarios in which such receivers are used require that the receiver must be extremely flexible in operation, and incorporate a large and sophisticated array of features. The TANDBERG Television TT1260 is a professional grade integrated receiver decoder, leading the field with a level of quality and large feature range that make the unit the perfect choice for contribution, distribution and mobile applications.

The TT1260 is designed to decode MPEG-2 SD 4:2:2 video and present it for onward use at the highest possible quality. Matching the high quality video capabilities, the TT1260 similarly supports all major professional audio standards. This highly flexible unit offers a vast array of input interface options - allowing the receiver to connect to almost every type of satellite, terrestrial, or telco network.

## PRODUCT OVERVIEW

### Flexibility

The TT1260 offers a vast variety of input interface options, making the unit suitable for connecting to almost every type of network. Highlights include support for the new DVB-S2 standard as well as legacy DVB-S and DVB-DSNG satellite transmission standards. For connection to telco networks, the receiver can also be fitted with G.703 or IP inputs.

### Secure Transmission

Security of content is all-important - something that is taken seriously by the TT1260. The TT1260 supports all major encryption systems including BISS 1 & E, RAS, Common Interface and TANDBERG Director V5 CA.

### Low Cost of Operation

The TT1260 can be integrated into a TANDBERG Television Director V5 control system - enabling large populations of receivers to be remotely controlled over-air from a central location, simplifying the system control structure and reducing the need for costly on-site local operators.

### Transfer of Private Data

As well as providing video and audio capabilities, the TT1260 also provides simultaneous carriage of additional data services. The TT1260 can receive several data formats including low-speed, high-speed and high-speed over IP data.

## BASE UNIT FEATURES

### TT1260 – Common Interface (TT1260/CIBAS)

The Common Interface (CI) version can accept one CA module (CAM) enabling the user to select the desired CA system and have the flexibility to change the CA system at a later stage.

### TT1260 – Common Interface, 48VDC (TT1260/CIBAS/48V)

Base unit as the TT1260/CIBAS but with 48Vdc power supply for telco installations.

### TT1260 - Director (TT1260/DIRBAS)

The TANDBERG Director version of the TT1260 enables a secure transmission of valuable content with the added benefit of over-air control reducing the need for local operators.

Standard features for base units:

- Dual SDI output with embedded de-compressed audio and VBI
- Dual analog (PAL/NTSC) BNC outputs
- Dual ASI transport stream outputs
- Frame synchronization input
- Remote control via SNMP or web page
- Single alarm relay
- Descrambling of MPEG-4 AVC via a CAM
- CAM menu browsing via web browser

## HARDWARE OPTIONS

### Transport Stream Inputs

#### ASI Input (TT1260/HWO/ASI)

- 2 x ASI inputs, up to 160 Mbit/s data rate

#### COFDM Input (TT1260/HWO/COFDM678)

- DVB-T OFDM input, compatible with 6, 7, 8 MHz bandwidth signals

#### COFDM Diversity Input (TT1260/HWO/COFDM678D)

- Dual diversity input for DENG applications

#### QPSK Input (TT1260/HWO/QPSK)

- 2 x L-band DVB-S QPSK satellite inputs

#### QPSK and ASI Input (TT1260/HWO/QPSK/ASI)

- DVB-S QPSK satellite and ASI input module
- 2 x L-band inputs, 2 x ASI inputs

#### DVB-S2 Input (TT1260/HWO/DVBS2)

- 4 x L-band DVB-S QPSK satellite inputs
- DVB-S2 QPSK, 8PSK demodulation upgrade with licence keys

#### DVB-S2 and ASI Input (TT1260/HWO/DVBS2/ASI)

- DVB-S QPSK satellite and ASI input module
- 4 x L-band inputs, 2 x ASI inputs
- DVB-S2 QPSK, 8PSK demodulation upgrade with licence keys

#### DVB-S2, ASI, IF Inputs & Constellation Output (TT1260/HWO/DVBS2/ASI/IF/C)

- Perfect for up-link monitoring
- 3 x L-band inputs, 1 x IF input
- I/Q constellation output
- DVB-S QPSK demodulation
- DVB-S2 QPSK, 8PSK demodulation upgrade with licence keys

#### Higher Order Modulation Input (TT1260/HWO/HOM)

- 4 x L-band inputs
- DVB-S BPSK, QPSK demodulation
- DVB-DSNG 8PSK, 16QAM demodulation with licence keys

#### Higher Order Modulation Input & Constellation Output (TT1260/HWO/HOM/CONST)

- 4 x L-band inputs
- DVB-S BPSK, QPSK demodulation
- DVB-DSNG 8PSK, 16QAM demodulation with licence keys
- I/Q constellation output

#### TTV G.703 Telco Interface (TT1260/HWO/G703)

- E3 or DS-3 inputs
- 34 or 45 Mbit/s rates

#### 10/100 BaseT IP Input (TT1260/HWO/IP)

- MPEG Transport Stream over IP
- 1 x 10/100BaseT Ethernet input
- DVB IPI FEC support

#### 10/100 BaseT IP Input w/FEC (TT1260/HWO/IP/PROFEC)

- MPEG Transport Stream over IP
- 1 x 10/100BaseT Ethernet input
- ProMPEG FEC with licence key

#### ATM E3 Telco Interface (TT1260/HWO/ATM-E3)

- E3 data rates

#### ATM DS3 Telco Interface (TT1260/HWO/ATM-DS3)

- DS3 data rates

#### Alarm Relay (TT1260/HDC/ALRM)

- 5 Alarm relay contacts

#### High Speed Serial Data Output (TT1260/HWO/HSDATA)

- RS422 over 9-pin D-Type connector
- 2048kbit/s max data rate

## SOFTWARE OPTIONS

### Input Options

#### Low Symbol Rate License (TT1260/SWO/LSYM)

- For input card: TT1260/HWO/QPSK
- Extends symbol rate range down to 300kSymbols/s

#### DVB-S2 QPSK License (TT1260/SWO/DVBS2/QPSK)

- Adds DVB-S2 QPSK capability to DVB-S2 input option card

#### DVB-S2 8PSK License (TT1260/SWO/DVBS2/8PSK)

- Adds DVB-S2 QPSK, 8PSK capability to DVB-S2 input option card

#### DVB-S2 Low Symbol Rate License (TT1260/SWO/DVBS2/LSYM)

- Enables DVB-S2 symbol rate of 1 to 5 Msymbols/s

#### DVB-DSNG 8PSK License (TT1260/SWO/8PSK)

- Adds DVB-DSNG 8PSK capability to DVB-DSNG input option card

#### DVB-DSNG16QAM License (TT1260/SWO/16QAM)

- Adds DVB-DSNG 8PSK, 16QAM capability to DVB-DSNG input option card

#### ProMPEG FEC License (TT1260/SWO/IP/PROFEC)

- For: TT1260/HWO/IP/PROFEC
- Adds ProMPEG FEC capability

### Data Transfer

#### High Speed Data over Ethernet (TT1260/SWO/HSEETHER)

- Ideal for telephony, IP traffic, video streaming
- Uses TT1260's RJ-45 control port
- Up to 5 Mbit/s data rate

### Conditional Access

#### BISS (TT1260/SWO/BISS)

- BISS Mode 1 & E

#### RAS 1 (TT1260/SWO/RAS)

- TANDBERG Television RAS 1 Transport Stream CA protection

#### RAS 2 (TT1260/SWO/RAS2)

- TANDBERG Television RAS 2 Transport Stream CA protection

#### TANDBERG Director V5 (TT1260/SWO/DIRV5)

- TANDBERG Television Director V5 CA
- TANDBERG Television Director V5 over-air control
- TANDBERG Television Director V5 over-air software downloads

#### Multi-Service Decryption (TT1260/SWO/MSD)

- Decrypt multiple services via professional CAMS
- Simultaneously decrypt 10 services or 24 PIDs max

#### Provider Lock (TT1260/SWO/PROV/LOCK)

- Allows services listed by broadcaster ID to be displayed

#### Signal protection (TT1260/SWO/SP)

- TANDBERG Television Signal Protection Scrambling

### Video/Audio Processing

#### 4:2:0 only Operation (TT1260/SWO/420)

- Limits TT1260 to MPEG-2 SD 4:2:0 video decoding operation only

#### Dolby Digital® Decoding (TT1260/SWO/DOLBY)

- Enables Dolby Digital® audio decoding

#### Audio Normalisation Licence (TT1260/SWO/AUD/NORM)

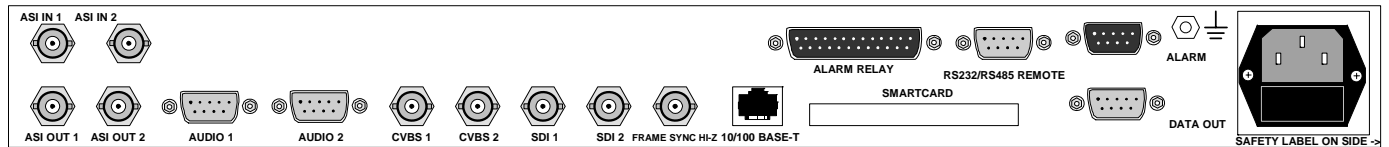
- Audio level attenuation of decoded audio
- Adjusts analog, digital & embedded audio level
- Audio levels can be normalised across numerous channels

### Other Software Options

#### Password Protection of Web Browser (TT1260/SWO/PW)

- Protects Web browser from malicious or accidental changes

### SAMPLE CONFIGURATION



### SPECIFICATIONS

#### Video and Audio Formats

##### Video

Decoding of one video service  
 422P@ML up to 50 Mbit/s  
 MP@ML up to 15 Mbit/s  
 (4:2:0 video only mode option available)

##### Audio

Decoding of two audio PIDs  
 Musicam: Analog and digital output  
 Linear 20bit PCM@48 kHz: Analog and digital output  
 Dolby® AC-3 2.0: Analog and digital output  
 Dolby® AC-3 5.1: Digital pass-through  
 Dolby® E: Digital pass-through  
 All de-compressed audio embedded in SDI  
 Dual Composite and Dual SDI video output  
 Simultaneous analogue and digital audio output  
 Extensive VBI support, including VBI in picture  
 VBI inserted in both composite and SDI output

#### Inputs

##### DVB QPSK input

Standard: EN300 421  
 Connector: 2 x F-type (F), 75 Ohm  
 Frequency range: 950 - 2150MHz  
 Symbol rates: 1 - 45 Msymbol/s  
 LNB power: 13V, 18V or off, 22 kHz on or off

##### DVB ASI input

Standard: EN50083-9  
 Connector: 2 x BNC (F), 50Ω  
 Max input rate: 160 Mbit/s  
 Packet Length: Auto-detect 188/204 byte packets

##### TTV G.703

Connector: BNC (F)  
 Network: G.703 compliant PDH  
 Input: E3 or DS-3 (selectable)  
 Bitrates: 34 or 45 Mbit/s versions

##### MPEG over IP

Connector: RJ 45  
 Format: 10/100 BaseT  
 FEC: Auto Detect

##### DVB-DSNG Higher Order Modulation

Standard: EN300 421, EN301 210  
 Connector: 4 x F-type (F), 75 Ohm  
 Frequency Range: 950 – 2150 MHz

Symbol Rate: 5 - 45 Msymbol/s  
 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  
 LNB power: 13V, 18V or off, 22 kHz on or off

##### DVB-S2

Standard: EN300 421, EN302 307  
 Connector: 4 x F-Type (F), 75 Ohm  
 Frequency Range: 950 – 2150 MHz  
 Symbol Rate: 1 - 45 Msymbol/s (DVB-S)  
 Symbol Rate: 5 - 31 Msymbol/s (DVB-S2)  
 Symbol Rate: 1 - 31 Msymbol/s (DVB-S2) (option)  
 Bitrate: 81 Mbit/s Max (DVB-S2)  
 FEC, DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8  
 FEC, DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10  
 FEC, DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10  
 DVB-S2 FEC Frames: Normal Frames  
 LNB power: 13V, 18V or off, 22 kHz on or off

##### DVBS2/ASI/IF/C Option

Inputs: 3x L-band  
 1x IF BNC (F) 75 Ohm  
 2x ASI BNC (F) 75 Ohm  
 IF Input Freq Range: 50 – 180 MHz (Monitor input)  
 Constellation Output: 2x BNC I/Q (F)

##### DVB-T COFDM Input

Connector: F-type (F), 75Ω  
 Frequency range: 47-862 MHz  
 Channel bandwidth: 6/7/8 MHz switchable  
 Carrier mode: 2K and 8K selectable  
 Carrier modulation: QPSK, 16QAM, 64QAM autodetected  
 Hierarchy: High/Low  
 Spectral inversion: Normal/Inverted

##### Frame Synchronization

Connector: BNC (F)

#### Outputs

##### DVB ASI Output

Connector: BNC (F) 75Ω  
 Sustained transport stream data rate: 160 Mbit/s (CA system dependent)  
 Enable/disable descrambling of selected service

##### Data

RS-232 Low speed data (Max 38.4 Kbit/s)  
 RS-422 High speed data (Max 2048 Kbit/s)

Ethernet high speed data (Max 5000 kbit/s)  
 Data Piping only  
**Alarm Relay**  
 Alarm Relays (summary and user customizable)  
 Connector: 9D-type, (M)

#### Conditional Access Options

DVB Common Interface  
 TANDBERG Director V4, V5  
 TANDBERG RAS-1 & 2  
 BISS mode-1 & E  
 MPEG-4 decryption via DVB CI  
 Multi-service decryption via DVB CI (Number of services limited by CAM)

#### Control

Front panel keypad and LCD  
 nCompass Control and Monitoring  
 Remote control via RS-232, TANDBERG remote control protocol  
 Remote control via RS-232 / RS-485, fully implemented Altea remote control protocol  
 TANDBERG Director inband remote control (only available with TANDBERG Director CA version)  
 Web browser control

#### Physical and Power

**Dimensions (W x D x H)**  
 435 x 275 x 44mm (17.2 x 10.75 x 1.75" approx)  
**Input Voltage**  
 110/240Vac or -48 Vdc

**Cooling**  
 Integrated fan, units may be stacked on top of each other

#### Environmental Conditions

**Operating Temperature**  
 0°C to +50°C (32° to 122°F) without DVB CI module  
**Storage Temperature**  
 -20°C to +60°C (4° to 140°F)  
**Relative Humidity**  
 5 to 95%

#### Compliance

CE compliant

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