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
TT1260 MPEG-2 Standard Definition Integrated Receiver Decoder

**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/DVB/S2)
- 4 x L-band DVB-S QPSK satellite inputs
- DVB-S2 QPSK, BPSK demodulation upgrade with licence keys

**DVB-S2 and ASI Input** (TT1260/HWO/DVB/S2/ASI)
- DVB-S QPSK satellite and ASI input module
- 4 x L-band inputs, 2 x ASI inputs
- DVB-S2 QPSK, BPSK demodulation upgrade 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
- DVB-S QPSK demodulation
- DVB-S2 QPSK, BPSK demodulation upgrade with licence keys

**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

**100/1000 BaseT IP Input w/FEC** (TT1260/HWO/IP/GIGE)
- MPEG Transport Stream over IP
- 2 x 100/1000BaseT Ethernet input
- Very low latency
- ProMPEG FEC with licence key (check for availability)

**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/DVB/S2/QPSK)
  - Adds DVB-S2 QPSK capability to DVB-S2 input option card
- DVB-S2 8PSK License (TT1260/SWO/DVB/S2/8PSK)
  - Adds DVB-S2 QPSK, 8PSK capability to DVB-S2 input option card
- DVB-S2 Low Symbol Rate License (TT1260/SWO/DVB/S2/LSYM)
  - Enables DVB-S2 symbol rate of 1 to 5 Msymbol/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/HSETHER)
  - 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/DIRECT)
  - TANDBERG Director V5 CA
- TANDBERG Television Director V5 over-air control
- TANDBERG Television Director V5 over-air software downloads

**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/PPW)
  - Protects Web browser from malicious or accidental changes
TT1260 MPEG-2 Standard Definition Integrated Receiver Decoder

**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 2.2: 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
- 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 - 2150 MHz
  - 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: 1x RJ 45
  - Format: 10/100 BaseT
  - FEC: ProMPEG
  - Gigabit MPEG over IP (Check availability)
    - Connector: 2x RJ 45
    - Format: 100/1000 BaseT

- **FEC:** ProMPEG
- **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: 3/5, 2/3, 3/4, 5/6, 8/9
  - FEC, 16QAM: 3/4, 7/8

- **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, 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

### 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)
  - Tandberg Proprietary Data Piping only

### Conditional Access Options

- **DVB Common Interface**
- **TANDBERG Director V4, V5**
- **TANDBERG RAS-1 & 2**
- **BISS mode-1 & E**
- **MPEG-4 decryption via DVB CI**

### 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
- **Power Consumption:** 45W Max (Depending on options fitted)

### Environmental Conditions

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