



TT1220 MPEG-2/DVB (4:2:0) Professional Single Channel Receiver

The TT1220 receiver is a highly popular professional receiver for MPEG-2 4:2:0@ML applications.



Business Benefits

Cost Effective Solution

- The TT1220 is designed to be shipped in large volume, offering an unmatched price/performance in the professional receiver market.

Secure Transmission

- The TT1220 can be delivered with TANDBERG Director, NDS Videoguard and Common Interface, which mean that it is compliant with all major CA systems.

Professional Monitoring

- With a wide range of input interface and simple TS measurement, the TT1220 is ideal for monitoring of Satellite and Terrestrial DTH networks.

Single Service Descrambler

- Equipped with either SDI or/and ASI output delivering a descrambled feed, the TT1220 will meet the need as a single channel descrambler.

Application

Cable Head-End

Capable of receiving digital feeds from Satellite links, Terrestrial compression centres or a main cable head end the TT1220 is a professional product with a wide range of interfaces and functionality ideal for the Cable Market.

The TT1220 is capable of descrambling one selected service and delivering it as an ASI output. A complete ASI service can be achieved by cascading several receivers. A major function of a professional IRD at an analogue cable head end is to provide excellent analogue audio and video signals. The TT1220 achieves this with its ability to handle all major composite formats including PAL, NTSC and SECAM.

Terrestrial Application

The TT1220 has already been adopted by most of the major DTT implementations in Europe as they emerge as the next platform in the terrestrial arena, proving the ideal solutions for adaptation systems and regional head ends.

Functionality that includes real time monitoring, remote status and content checking are essential for Digital terrestrial systems; all are included in the TT1220. Equipped with an OFDM demodulator front end that includes MER measurement, the TT1220 is an ideal solution for professional DTT error detection and monitoring the network for content failure, modulation failure and bit errors.

Satellite Distribution & Contribution Application

The TT1220 can be used as a satellite receiver at receive sites and also for the monitoring of content delivery. As the receiver supports a wide range of DVB open standard and proprietary scrambling systems it is well suited to operate in a large number of different satellite distribution systems.

The TT1220 can also be utilised in a highly secure TANDBERG Director network management and receiver control system. This system enables the operator to accurately control who receives their output and using the over air control facilities ensure that receivers are correctly tuned and their content scheduled. Again this removes the necessity for remote sites to be manned at all times.



Base units

Transport Stream Input Options

The TT1220 comes with choice of optional Front-End Interfaces to make it suitable to a range of different applications.

The main input of the TT1220 is the QPSK f-connector. This input interfaces directly to Low-Noise Block (LNB) and accepts an intermediate frequency (IF) input in the 950 – 2150 MHz (L-band) range. The unit can provide DC power, as well as a 22 kHz control signal. The maximum input symbol rate is 44,5 Msym/s, while the maximum total bit-rate is 60 Mbit/s.

An optional (factory fitted) COFDM or an optional (factory fitted) DVB-ASI BNC connector may be present, replacing the QPSK front-end interface. The COFDM input accepts 6, 7 or 8 MHz UHF input, depending on the ordered bandwidth (factory fitted option) with 2K or 8K signals. The ASI input accepts a DVB-ASI compliant signal (188 or 204 byte), at a maximum of 60 Mbit/s.

Conditional Access

The TT1220 is integrated with all the major CA vendors and can handle the following systems.

NDS VideoGuard Director	(Smart Card)
NDS VideoGuard BSkyB Version	(Smart Card)
DVB Common Interface	(Conditional Access Module)
BISS (Mode 0 and 1)	(Embedded)

Output Formats

One DVB-ASI BNC connector may be available. This provides the current incoming transport stream, including the current descrambled service, to be output at a maximum of 60 Mbit/s.

Two BNC composite analogue video outputs are present on the rear of the unit. If the factory fitted option of a SDI video output is present, it replaces one of the composite outputs.

One analogue stereo audio pair carried on a 9-pin D-SUB connector, is available. Depending on the input, it is menu configurable to allow one stereo, a dual-mono or two independent mono channels. The channels can carry different languages.

RS-232 asynchronous low speed data output carried on a 9-way D-sub connector, available on all models. The data output rate is configurable from 1200 bit/s to 115200 bit/s.

Control

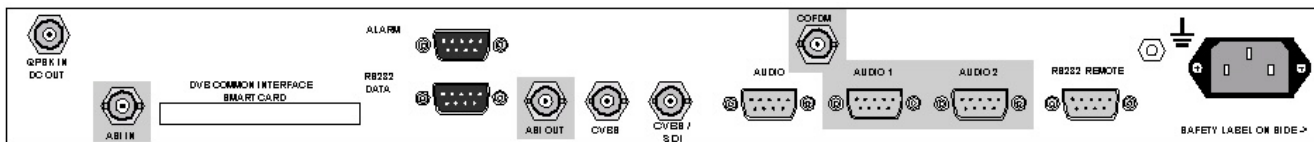
The TT1220 is designed for unattended operation. Once set up, it requires no further attention except to ensure that the fan is working. There are three control modes associated with the receiver, local (keypad), remote (RS-232), and over the air control.

The Units

Common Interface: ASI input, ASI output	(TT1220/BAS/ASI/CI3)
Common Interface: ASI input, ASI output, extra audio, SDI	(TT1220/BAS/ASI/CI2)
Common Interface: COFDM 7MHz input, ASI output	(TT1220/BAS/COFDM7/CI1)
Common Interface: COFDM 8MHz input, ASI output	(TT1220/BAS/COFDM8/CI1)
Common Interface: QPSK input	(TT1220/BAS/QPSK/CI)
Common Interface: QPSK input, Russian SECAM	(TT1220/BAS/QPSK/CI2)
Common Interface: QPSK in, ASI out, extra audio, Russian Secam	(TT1220/BAS/QPSK/RS)
Common Interface: QPSK input, ASI output, extra audio, 4 relay	(TT1220/BAS/QPSK/CI5)
Common Interface: QPSK input, ASI output, extra audio	(TT1220/BAS/QPSK/CI6)
NDS Director CA: ASI input, ASI output, extra audio, 4 relay	(TT1220/BAS/ASI/NDS2)
NDS Director CA: QPSK input, 4 relay	(TT1220/BAS/QPSK/NDS1)
NDS Director CA: QPSK input, extra audio, 4 relay	(TT1220/BAS/QPSK/NDS2)
NDS Director CA: QPSK input, ASI output, 4 relay	(TT1220/BAS/QPSK/NDS5)
NDS BSkyB CA: ASI input, ASI out, extra audio	(TT1220/BAS/ASI/BSKYB1)
NDS BSkyB CA: ASI input, ASI out, extra audio, SDI	(TT1220/BAS/ASI/BSKYB2)
NDS BSkyB CA: QPSK input, 4 relay	(TT1220/BAS/QPSK/BSKYB1)
NDS BSkyB CA: QPSK input, ASI output, 4 relay	(TT1220/BAS/QPSK/BSKYB2)
NDS BSkyB CA: QPSK input, ASI output, 4 relay, SDI	(TT1220/BAS/QPSK/BSKYB3)



Sample configuration:



<p>INPUTS</p> <p>DVB QPSK input Connector: F-type (female), 75 ohm Frequency range: 950-2150MHz Symbol rates: 1-45 Mbaud/s LNC power: 13V, 18V or off 22KHz tone On/off Spectral inversion: Normal/inverted</p> <p>DVB ASI input Connector: BNC (female), 50 ohm Sustained TS data rate: 60Mbps Maximum burst time: 370µs at 216Mbps</p> <p>DVB-T COFDM input¹⁾ Connector: F-type (female), 50 ohm Frequency range: 47-862MHz Channel bandwidth: 7 & 8 MHz Carrier mode: 2K and 8K selectable Carrier modulation: QPSK, 16QAM, 64QAM Auto-detected Hierarchy: High/low Spectral inversion: Normal/inverted</p> <p><small>¹⁾The nature of COFDM modulation introduces an end-to-end PCR jitter that is larger than DVB ETR290 specification (< 500ns). The typical magnitude is around 1000ns; this will trigger alerts in an ETR290 monitor, but will in the vast majority of cases have no practical decoding implications.</small></p>	<p>FEATURES</p> <p>Automatic selection of PAL/SECAM/NTSC TS Handling</p> <ul style="list-style-type: none"> Complete DVB PSI/SI processing PSI/SI disable for non-DVB streams ATSC service selection Auto selection of language for audio, subtitles and teletext <p>Flexible VBI handling</p> <ul style="list-style-type: none"> Transcoding of DVB teletext (WST), reinserted in PAL and SECAM outputs (VBI) Inverted teletext insertion Wide Screen Signalling (WSS) and Video Programming System (VPS) Test Signal (VITS) generation Closed Captioning, V.chip GCR DIDON <p>On-screen processing</p> <ul style="list-style-type: none"> NCP fingerprinting (Tandberg Director™) EBU-teletext subtitling DVB Subtitling <p>Flexible CA handling</p> <ul style="list-style-type: none"> DVB Common Interface <ul style="list-style-type: none"> Conax Irdeto Nagravision CryptoWorks Mediaguard BetaCrypt TANDBERG Director NDS VideoGuard® BskyB BISS (Mode-1 & E) <p>Format conversion</p> <ul style="list-style-type: none"> Letterbox handling PAN/SCAN 14:9 Combination <p>Over the air software download (TANDBERG Director™)</p> <p>On site 1 (optionally 4) configurable contact closure alarm relays</p>
<p>OUTPUTS</p> <p>Analogue Video Output Connectors: 2 x BNC (female)</p> <ul style="list-style-type: none"> PAL NTSC SECAM Russian SECAM <p>Digital Video Output Connector: 1xBNC (female) 75ohm</p> <ul style="list-style-type: none"> Replaces one of the analogue video outputs EDH and VBI (VITS only) <p>Analogue Audio Output Connectors: 9Dsub, balanced (male)</p> <ul style="list-style-type: none"> One balanced analogue audio pair Optionally two balanced audio pairs (MPEG Layer II or Dolby® Pro Logic 2 channel downmix decompression) <p>Digital Audio Output Connectors: 9Dsub, unbalanced (male)</p> <ul style="list-style-type: none"> Dolby Digital® (AC-3) (on the two additional audio pairs) Serial Digital Audio (S/PDIF) <p>Data Output Connector: 9Dsub, male</p> <ul style="list-style-type: none"> Asynchronous RS232 <p>DVB ASI Output Connector: BNC (female) 75 ohm</p> <ul style="list-style-type: none"> Sustained transport stream data rate: 60Mbps Enable/disable descrambling of selected service 	<p>CONTROL</p> <p>Front panel keypad and LCD TDC remote control In Band remote control with NCP (TANDBERG Director)</p> <hr/> <p>PHYSICAL AND POWER</p> <p>Dimensions: (W x H x D) 435 x 275 x 44mm (19" x 10.75" x 1RU)</p> <p>Input Voltage: 110/240VAC</p> <p>Cooling: Integrated fan, units may be stacked on top of each other</p> <hr/> <p>ENVIRONMENTAL CONDITIONS</p> <p>Operating Temperature: 0°C to +50°C (without DVB CI module)</p> <p>Storage Temperature: -20°C to +60°C</p> <p>Relative Humidity: 5 to 95%</p> <hr/> <p>COMPLIANCE</p> <p>CE compliant, UL compliant</p>

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