

## Digital TV Equipment and System

## **MX-5500**

#### Professional HEVC IRD and Processor



#### The MX-5500 is the newest model of ANTIK's IRD product family. It provides operators an ideal solution for receiving, remultiplexing, descrambling and decoding operations, maximum supporting 1080i@60fps decoding. Equipped with a variety of inputs, it ensures compatibility all transmission media. MX-5500's re-multiplexing capabilities enable creation of new transport streams that are subsets of the original stream. Customized services may be output as multiple SPTS or MPTS over IP, as well as over ASI. By the dual DVB common interfaces, each slot could decrypt multiple services in one transport stream independently. MX-5500 is also professional IRD that features broadcast quality decoder for MPEG-2 and MPEG-4 AVC/H.264 HEVC/H.265/AVS+ in Standard Definition and High Definition formats, and provides a variety of industry standard digital and analog outputs, including CVBS video, HDMI, and SDI interface. The unit also performs aspect ratio adaptation of HD programs to generate professional quality baseband analog video and audio outputs for easy integration with existing cable network infrastructure. This all-in-one architecture makes MX-5500 an ideal product for distribution and contribution networks.

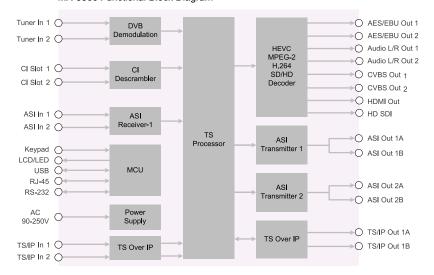
#### Main Feature

- Variety of input options DVB-T2/S2/S/C/T/ DS3, TS/IP and ASI
- Supports DVB-S2 Input Stream Identifier (ISI, optional) and DVB-T SFN MIP pass through
- Redundant backup among Tuner, ASI and TS/ IP with configurable priority
- SD/HD/ MPEG-2, MPEG-4 AVC/H.264, HEVC/H.265 video decoding
- Analog and Digital Outputs, ASI, CVBS, HDMI, SDI, TS/IP
- Built-in 2×re-multiplexer
- 2×DVB-CI Slots, multi-program decryption
- Multi-program decryption with BISS, support BISS-1 and BISS-E mode

- Dynamic PMT detection and automatic updating
- Supports VBI TELETEXT, EBU/DVB Subtitle, Closed Caption
- UDP/RTP, Unicast/Multicast, and double full duplex SPTS/MPTS over IP
- Remote Control and Supervision by SNMP, HTTP WEB and TRAP
- TFT monitor and headphone socket
- On Site software update through IP and USB
- RSSI, received C/N, Eb/No & BER monitoring

#### **Block Diagram**

### MX-5500 Functional Block Diagram



# 1.5" LCD Monitor on front panel



Hot-swappable redundant power supply







## Specification

Factory Optional	PLS,16APSK/32APSK/64APSK
Input Frequency Range	2xE type female 7FO for larget
Input Level   -25~-65dBm   Symbol Rate   1~ 45Msps   DVB-S: 0.35   0.25   0.2   DVB-S: 0.35   0.25   0.2   DVB-S: 0.35   0.25   0.2   DVB-S: 0.95K: 1/2   2/3   3/4   5/6   7/8   DVB-S2   QPSK: 1/2   3/5   2/3   3/4   4/5   5/6   8/9   9/10   DVB-S2   QPSK: 3/5   2/3   3/4   5/6   8/9   9/10   DVB-S2   QPSK: 3/6   QPSK-S2	
Symbol Rate   1~ 45Msps   DVB-S: 0.35   D	
Roll-off Factor   DVB-S: 0.35, 0.25, 0.2   DVB-S2: 0.35, 0.25, 0.2   DVB-S2: 0.35, 0.25, 0.2   DVB-S2: QPSK: 1/2, 2/3, 3/4, 5/6, 7/8   DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5   5/6, 8/9,9/10   DVB-S2 &PSK: 3/5, 2/3, 3/4, 5/6, 8/9   9/10   DVB-S2 &PSK: 3/5, 2/3, 3/4, 5/6, 8/5   9/10   DVB-S2 &PSK: 3/5, 2/3, 3/4, 5/6, 7/8   9/10   DVB-S2 &PSK: 3/5, 2/3, 3/4, 5/6, 7/8   9/10   DVB-S2 &PSK: 3/5, 2/3, 3/4, 5/6, 7/8   DVB-T2: 1/4, 1/8, 1/16, 1/32   DVB-T2: 1/2, 3/3, 3/4, 3/5, 5/6   7/8   DVB-T2: 1/2, 3/5, 2/3, 3/4, 3/5, 5/6   7/8   DVB-T2: 1/2, 3/5, 2/3, 3/4, 3/5, 5/6   7/8   DVB-T2: 1/2, 3/5, 2/3, 3/4, 3/5	
DVB-S2: 0.35, 0.25, 0.2	
DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5	
DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5	DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/5 9/10	DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5
9/10	
UNB Polarity Selection Voltage UNB Band Selection Tone Satellite Selection Command PLS SI ID O ~ 2651 user configurable SI ID O ~ 255 user configurable SI ID O ~ 2654 user configurable SI ID O ~ 2654 user configurable  DVB-C Tuner Input Connector Type Input Frequency Range Input Level Input Level Symbol Rate  Constellation Bandwidth Bandwidth Bandwidth Input Return Loss DVB-T72 Tuner Input Connector Type  2×F type female 75Ω for Input Input Revel Input Revel Input Revel Symbol Rate  2×F type female 75Ω for Input Input Reven Input Reven Input Reven Input Reven Input Reven Input Frequency Input Reven Input Frequency Input Level Input Frequency Input Level Input Frequency Input Level Input Reven Input Reve	
Voltage         UV, 13V, 16V selectable           LNB Band Selection Tone         OKHz, 22KHz selectable           Satellite Selection Command         DiSEqC 1.0           PLS         0 ~ 262141 user configurable           ISI ID         0 ~ 255 user configurable           DVB-C Tuner Input         Connector Type           Input Frequency Range         51~862MHz           Input Level         45 ~ 756BµV           Symbol Rate         1 ~ 7MBaud (ITU J.83 Annex A and ITU J.83 Annex A)           Symbol Rate         1 6QAM, 32QAM, 64QAM, 128QAM 256QAM           Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input           Connector Type         2×F type female 75Ω for Input           Input Return Loss         104~862MHz (VHF/UHF)           Input Level         -20~70dBm           Consetllation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T: 1	
Discrete	0V, 13V, 18V selectable
PLS ISI ID    O ~ 262141 user configurable	0KHz, 22KHz selectable
SI ID   0 ~ 255 user configurable	DiSEqC 1.0
DVB-C Tuner Input         2×F type female 75Ω for Input           Input Frequency Range         51-862MHz           Input Level         45 ~ 75dBμV           Symbol Rate         1 ~ 7MBaud (ITU J.83 Annex A and ITU J.83 Annex C)           Constellation         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input           Connector Type         2×F type female 75Ω for Input           Input Frequency         104~862MHz (VHF/UHF)           Input Level         -20~70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         DVB-T2: QPSK, 16QAM, 64QAM           DVB-T2: AK, 8K         DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K           DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 1K, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         2 200Mb/s           TS	
Connector Type         2×F type female 75Ω for Input           Input Frequency Range         51~862MHz           Input Level         45 ~ 75dBμV           1 ~ 7MBaud (ITU J.83 Annex A and ITU J.83 Annex A and ITU J.83 Annex C)           Constellation         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input Input Frequency           Input Frequency         104-862MHz (VHF/UHF)           Input Level         -20~70dBm           Constellation         DVB-T. QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T2: AK, 2K, 4K, 8K, 16K, 32K           DVB-T2: 14K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 14K, 2K, 4K, 8K, 16K, 32K           DVB-T3: 14A, 178, 1716, 1732         1764, 1712           Guarding Interval         DVB-T2: 172, 2/3, 3/4, 5/6, 7/8           DVB-T2: 174, 5732, 1/8, 5/64, 1/16, 1/32         1/64, 1/128           FEC Code Rate         DVB-T2: 172, 2/3, 3/4, 5/6, 7/8           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Connector Type         2×BNC female, 75Ω           Standa	0 ~ 255 user configurable
Input Frequency Range         51~862MHz           Input Level         45 ~ 75dBμV           Symbol Rate         1 ~ 7MBaud (ITU J.83 Annex A and ITU J.83 Annex A and ITU J.83 Annex C)           Constellation         256QAM, 32QAM, 64QAM, 128QAM 256QAM           Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input Input Frequency           104~862MHz (VHF/UHF)         104~862MHz (VHF/UHF)           Input Level         -20~70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM 256QAM           DVB-T: QPSK, 16QAM, 64QAM 256QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T: 1/4, 1/8, 1/16, 1/32         Guarding Interval           FET Mode         DVB-T: 1/4, 5/32, 1/8, 5/64, 32K           DVB-T: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32         Guarding Interval           FEC Code Rate         DVB-T: 1/4, 5/32, 3/4, 5/6, 7/8           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, ENS0083-9           Input Bit Rate         2 200Mb/s for 2xSPTS or 2xMPT; for each IP interface	
Input Level	
Symbol Rate         1 ~ 7MBaud (ITU J.83 Annex A and ITU J.83 Annex C)           Constellation         16QAM, 32QAM, 64QAM, 128QAM 256QAM           Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input Input Frequency           Input Frequency         104-862MHz (VHF/UHF)           Input Level         -20~-70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8         DVB-T: 1/2, 2/3, 3/4, 4/5, 5/6           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Connector Type         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 16xSPTS/2xMPTs for each IP interface         Output:200Mb/s for 16xSPTS/2xMPTs for each IP interface	
J.83 Annex C   Constellation	
Constellation  256QAM, 32QAM, 64QAM, 128QAM 256QAM  Bandwidth 6MHz, 7MHz, 8MHz 1nput Return Loss  DVB-T/T2 Tuner Input  Connector Type 104-862MHz (VHF/UHF) 1nput Level 20~-70dBm Constellation  DVB-T; QPSK, 16QAM, 64QAM DVB-T2: QPSK, 16QAM, 64QAM 256QAM  Bandwidth 6MHz, 7MHz, 8MHz  FFT Mode  DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K DVB-T2: 114, 5/32, 1/8, 5/64, 1/16, 1/32  Guarding Interval  DVB-T2: 1/2, 3/3, 3/4, 5/6, 7/8 DVB-T2: 1/2, 3/3, 3/4, 4/5, 5/6  Input Return Loss  ASI Input  Connector Type  2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPT; for each IP interface Output:200Mb/s for 16xSPTS/2xMPT; for each IP interface Output:200Mb/s for 16xSPTS/2xMPT; for each IP interface  Common interface  Common interface  Common interface  ASI Output  Connector Type  2×RJ-45 independent, 100/1000 Basefull duplex for 2xSPTS or 2xMPT; for each IP interface Output:200Mb/s for 16xSPTS/2xMPT; for each IP interface Output:200Mb/s for 16xSPTS/2xMPT; for each IP interface Output:200Mb/s for 16xSPTS/2xMPT; for each IP interface One 2×slot for 2 TS multi-program decryptio support EN 50221 One multi-program decryption support EN 50221	,
Constellation         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input           Connector Type         104~862MHz (VHF/UHF)           Input Frequency         104~862MHz (VHF/UHF)           Input Level         -20~-70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K           DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K           DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 11/4, 5/32, 1/8, 5/64, 1/16, 1/32           Guarding Interval         DVB-T2: 11/2, 3/3, 4, 5/6, 7/8           DVB-T2: 11/2, 3/3, 3/4, 5/6, 7/8         DVB-T2: 11/2, 3/3, 3/4, 4/5, 5/6           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Connector Type         2×BNC female, 75Ω           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 2xSPTS or 2xMPT: for each IP interface           Output:200Mb/s for 16xSPTS/2xMPT: for each IP interface	
Bandwidth         6MHz, 7MHz, 8MHz           Input Return Loss         7dB (typ.)           DVB-T/T2 Tuner Input         2×F type female 75Ω for Input           Connector Type         2×F type female 75Ω for Input           Input Level         -20~70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T2: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Connector Type         10x Processing           Re-multiplexer         2×re-multiplexer up to 200Mb/s for each IP interface           UDP / RTP, Multicast / Unicast, IGMPv3 ARP           TS Processing         2×re-multiplexer up to 200Mb/s for each up to 200Mb/s fo	
DVB-T/T2 Tuner Input           Connector Type         2×F type female 75Ω for Input           Input Frequency         104-862MHz (VHF/UHF)           Input Level         -20~-70dBm           Constellation         DVB-T. QPSK, 16QAM, 64QAM           DVB-T. 2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T: 1/4, 1/8, 1/16, 1/32         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8         DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 2xSPTS or 2xMPT: for each IP interface         Output:200Mb/s for 16xSPTS/2xMPT: for each IP interface           Protocol         ARP           TS Processing         2×re-multiplexer up to 200Mb/s for eac one           Common interface         2×slot for 2 TS multi-program decryption support EN 50221 <t< td=""><td></td></t<>	
Connector Type         2×F type female 75Ω for Input           Input Frequency         104~862MHz (VHF/UHF)           Input Level         -20~-70dBm           Constellation         DVB-T. QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T2: 1K, 8K           DVB-T2: 1/4, 1/8, 1/16, 1/32         DVB-T2: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T2: 1/2, 2/3, 3/4, 5/6, 7/8           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input: 200Mb/s for 2xSPTS or 2xMPT: for each IP interface         Output: 200Mb/s for 16xSPTS/2xMPT: for each IP interface           Protocol         UDP / RTP, Multicast / Unicast, IGMPv3ARP           TS Processing         2×re-multiplexer up to 200Mb/s for eac one           Common interface         2×slot for 2 TS multi-program decryption suppor EN 50221           One multi-program decryption suppor BISS-1 and BISS-E mode           ASI Output           Conne	7dB (typ.)
Input Frequency         104~862MHz (VHF/UHF)           Input Level         -20~-70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           Input Return Loss         7dB (typ.)           ASI Input         Connector Type           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Connector Type         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 2xSPTS or 2xMPT: for each IP interface         Output:200Mb/s for 16xSPTS/2xMPT: for each IP interface           Protocol         UDP / RTP, Multicast / Unicast, IGMPv3ARP           TS Processing         2×re-multiplexer up to 200Mb/s for eac one           Common interface         2×slot for 2 TS multi-program decryption suppor BISS-1 and BISS-E mode           ASI Output	
Input Frequency         104~862MHz (VHF/UHF)           Input Level         -20~-70dBm           Constellation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM         256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           Input Return Loss         7dB (typ.)           ASI Input         Connector Type           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Connector Type         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 2xSPTS or 2xMPT: for each IP interface         Output:200Mb/s for 16xSPTS/2xMPT: for each IP interface           Protocol         UDP / RTP, Multicast / Unicast, IGMPv3ARP           TS Processing         2×re-multiplexer up to 200Mb/s for eac one           Common interface         2×slot for 2 TS multi-program decryption suppor BISS-1 and BISS-E mode           ASI Output	2×F type female 75Ω for Input
Constellation         DVB-T: QPSK, 16QAM, 64QAM           DVB-T2: QPSK, 16QAM, 64QAM           256QAM           Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K           DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T2: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6         Input Return Loss           ASI Input         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Connector Type         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 2xSPTS or 2xMPTS for each IP interface         Output:200Mb/s for 16xSPTS/2xMPTS for each IP interface           Protocol         UDP / RTP, Multicast / Unicast, IGMPV3 ARP           TS Processing         2×re-multiplexer up to 200Mb/s for each one           Common interface         2×slot for 2 TS multi-program decryption support EN 50221           One multi-program decryption support EN 50221         One multi-program decryption support BISS-1 and BISS-E mode	
DVB-T2: QPSK, 16QAM, 64QAM, 256QAM	-20~-70dBm
256QAM	
Bandwidth         6MHz, 7MHz, 8MHz           FFT Mode         DVB-T: 2K, 8K           DVB-T: 1/4, 8K         DVB-T: 1/4, 1/8, 1/16, 1/32           Guarding Interval         DVB-T: 1/4, 1/8, 1/16, 1/32           FEC Code Rate         DVB-T: 1/2, 1/3, 3/4, 5/64, 1/16, 1/32           FEC Code Rate         DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8           DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8         DVB-T: 1/2, 2/3, 3/4, 4/5, 5/6           Input Return Loss         7dB (typ.)           ASI Input         Connector Type           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for Ts/IP           Connector Type         2×RJ-45 independent, 100/1000 Basefull duplex for 2xSPTS or 2xMPT; for each IP interface           Output:200Mb/s for 2xSPTS or 2xMPT; for each IP interface         Output:200Mb/s for 16xSPTS/2xMPT; for each IP interface           Protocol         UDP / RTP, Multicast / Unicast, IGMPv3 ARP           TS Processing         2×re-multiplexer up to 200Mb/s for eac one           Common interface         2×slot for 2 TS multi-program decryption support EN 50221           One multi-program decryption support EN 50221         One multi-program decryption support EN 50221           ASI Output <td></td>	
DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K	
DVB-12: 1K, 2K, 4K, 8K, 16K, 32K	
Guarding Interval         DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32 1/64, 1/128           FEC Code Rate         DVB-T2: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6           Input Return Loss         7dB (typ.)           ASI Input         2×BNC female, 75Ω           Connector Type         2×BNC female, 75Ω           Standard         DVB-ASI, EN50083-9           Input Bit Rate         ≤ 200Mb/s           TS over IP         2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP           Input:200Mb/s for 2xSPTS or 2xMPT3 for each IP interface         Output:200Mb/s for 16xSPTS/2xMPT3 for each IP interface           Protocol         UDP / RTP, Multicast / Unicast, IGMPv3 ARP           TS Processing         2×re-multiplexer up to 200Mb/s for each one           Common interface         2×slot for 2 TS multi-program decryption support EN 50221           One multi-program decryption support EN 50221         One multi-program decryption support EN 50221           ASI Output         2 pairs, 4 x BNC female, 75Ω	DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K
1/64, 1/128  PEC Code Rate  DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8  DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6  Input Return Loss  ASI Input  Connector Type  Standard  DVB-ASI, EN50083-9  Input Bit Rate  TS over IP  Connector Type  2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP  Input:200Mb/s for 2xSPTS or 2xMPTS for each IP interface  Output:200Mb/s for 16xSPTS/2xMPTS for each IP interface  Protocol  Protocol  TS Processing  Re-multiplexer  Common interface  Common interface  2×re-multiplexer up to 200Mb/s for each upont interface  2×slot for 2 TS multi-program decryption support in SD221  One multi-program decryption support in SISS-1 and BISS-E mode  ASI Output  Connector Type  2 pairs, 4 x BNC female, 75Ω	
FEC Code Rate  DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8  DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6  Input Return Loss  ASI Input  Connector Type  2×BNC female, 75Ω  Standard  DVB-ASI, EN50083-9  Input Bit Rate  ≤ 200Mb/s  TS over IP  Connector Type  2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP  Input:200Mb/s for 2xSPTS or 2xMPTs  for each IP interface  Output:200Mb/s for 16xSPTS/2xMPTs  for each IP interface  UDP / RTP, Multicast / Unicast, IGMPV3  ARP  TS Processing  Re-multiplexer  Common interface  2×slot for 2 TS multi-program decryption support EN 50221  One multi-program decryption support BISS  ASI Output  Connector Type  2 pairs, 4 x BNC female, 75Ω	
DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6	
Input Return Loss     7dB (typ.)       ASI Input     2×BNC female, 75Ω       Standard     DVB-ASI, EN50083-9       Input Bit Rate     ≤ 200Mb/s       TS over IP     2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP       Connector Type     2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP       Input:200Mb/s for 2xSPTS or 2xMPTS     for each IP interface       Output:200Mb/s for 16xSPTS/2xMPTS     for each IP interface       Protocol     UDP / RTP, Multicast / Unicast, IGMPVSARP       TS Processing     2×re-multiplexer up to 200Mb/s for eac one       Common interface     2×slot for 2 TS multi-program decryption support EN 50221       One multi-program decryption support EN 50221     One multi-program decryption support BN 50221       ASI Output     2 pairs, 4 x BNC female, 75Ω	
Connector Type       2×BNC female, 75Ω         Standard       DVB-ASI, EN50083-9         Input Bit Rate       ≤ 200Mb/s         TS over IP       2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP         Connector Type       Input:200Mb/s for 2xSPTS or 2xMPTs for each IP interface         Output:200Mb/s for 16xSPTS/2xMPTs for each IP interface       Output:200Mb/s for 16xSPTS/2xMPTs for each IP interface         Protocol       UDP / RTP, Multicast / Unicast, IGMPv3 ARP         TS Processing       2×re-multiplexer up to 200Mb/s for each one         Common interface       2×slot for 2 TS multi-program decryption supported support EN 50221         One multi-program decryption supported bisself and Biss-E mode         ASI Output         Connector Type       2 pairs, 4 x BNC female, 75Ω	
Standard       DVB-ASI, EN50083-9         Input Bit Rate       ≤ 200Mb/s         TS over IP       2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPTs for each IP interface Output:200Mb/s for 16xSPTS/2xMPTs for each IP interface         Protocol       UDP / RTP, Multicast / Unicast, IGMPV3 ARP         TS Processing       2×re-multiplexer up to 200Mb/s for eac one         Common interface       2×slot for 2 TS multi-program decryption support EN 50221         One multi-program decryption support BISS       BISS-1 and BISS-E mode         ASI Output       2 pairs, 4 x BNC female, 75Ω	
Standard       DVB-ASI, EN50083-9         Input Bit Rate       ≤ 200Mb/s         TS over IP       2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPTs for each IP interface Output:200Mb/s for 16xSPTS/2xMPTs for each IP interface         Protocol       UDP / RTP, Multicast / Unicast, IGMPV3 ARP         TS Processing       2×re-multiplexer up to 200Mb/s for eac one         Common interface       2×slot for 2 TS multi-program decryption support EN 50221         One multi-program decryption support BISS       BISS-1 and BISS-E mode         ASI Output       2 pairs, 4 x BNC female, 75Ω	2×BNC female, 75Ω
TS over IP  Connector Type  2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPTS for each IP interface Output:200Mb/s for 16xSPTS/2xMPTS for each IP interface Protocol  TS Processing  Re-multiplexer  Common interface  2×re-multiplexer up to 200Mb/s for eac one 2×slot for 2 TS multi-program decryptio support EN 50221 One multi-program decryption support BISS  ASI Output Connector Type  2×RJ-45 independent, 100/1000 Base- full duplex for 2xMPTS for each IP interface Output:200Mb/s for 2xMPTS ASI Output Connector Type  2×ac-multiplexer up to 200Mb/s for each one 2×slot for 2 TS multi-program decryption support EN 50221 One multi-program decryption support BISS-1 and BISS-E mode	DVB-ASI, EN50083-9
Connector Type     2×RJ-45 independent, 100/1000 Basefull duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPTS for each IP interface Output:200Mb/s for 16xSPTS/2xMPTS for each IP interface       Effective Bit Rate     Utput:200Mb/s for 16xSPTS/2xMPTS for each IP interface       Protocol     UDP / RTP, Multicast / Unicast, IGMPVS ARP       TS Processing     2×re-multiplexer up to 200Mb/s for each one       Common interface     2×slot for 2 TS multi-program decryption support EN 50221       Done multi-program decryption support BISS-1 and BISS-E mode       ASI Output       Connector Type     2 pairs, 4 x BNC female, 75Ω	≤ 200Mb/s
full duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPTS for each IP interface Output:200Mb/s for 16xSPTS/2xMPTS for each IP interface Protocol TS Processing Re-multiplexer Common interface BISS ASI Output Connector Type  full duplex for TS/IP Input:200Mb/s for 2xSPTS or 2xMPTS for each IP interface UDP / RTP, Multicast / Unicast, IGMPVS ARP  2×re-multiplexer up to 200Mb/s for each one 2×slot for 2 TS multi-program decryption support EN 50221 One multi-program decryption support BISS-1 and BISS-E mode  ASI Output Connector Type 2 pairs, 4 x BNC female, 75Ω	
Effective Bit Rate  Input:200Mb/s for 2xSPTS or 2xMPT: for each IP interface Output:200Mb/s for 16xSPTS/2xMPT: for each IP interface Output:200Mb/s for 16xSPTS/2xMPT: for each IP interface UDP / RTP, Multicast / Unicast, IGMPv3 ARP TS Processing  Re-multiplexer  Common interface 2×re-multiplexer up to 200Mb/s for eac one 2×slot for 2 TS multi-program decryptio support EN 50221 One multi-program decryption support BISS BISS-1 and BISS-E mode  ASI Output Connector Type 2 pairs, 4 x BNC female, 75Ω	
Effective Bit Rate     for each IP interface Output: 200Mb/s for 16xSPTS/2xMPT: for each IP interface       Protocol     UDP / RTP, Multicast / Unicast, IGMPv3ARP       TS Processing     2×re-multiplexer up to 200Mb/s for eac one       Common interface     2×slot for 2 TS multi-program decryptio support EN 50221       BISS     One multi-program decryption support EN 50221       ASI Output       Connector Type     2 pairs, 4 x BNC female, 75Ω	
Output:200Mb/s for 16xSPTS/2xMPTs for each IP interface Protocol UDP / RTP, Multicast / Unicast, IGMPv3 ARP  TS Processing Re-multiplexer 2×re-multiplexer up to 200Mb/s for each one 2×slot for 2 TS multi-program decryption support EN 50221 One multi-program decryption support EN 50211 and BISS-E mode  ASI Output Connector Type 2 pairs, 4 x BNC female, 75Ω	
for each IP interface UDP / RTP, Multicast / Unicast, IGMPv3 ARP  TS Processing  Re-multiplexer  Common interface  BISS  ASI Output  Connector Type  Frotocol  ARP  2×re-multiplexer up to 200Mb/s for eac one 2×slot for 2 TS multi-program decryptio support EN 50221 One multi-program decryption support EN 50221  ASI Output  Connector Type  2 pairs, 4 x BNC female, 75Ω	
Protocol     UDP / RTP, Multicast / Unicast, IGMPv3 ARP       TS Processing     2×re-multiplexer up to 200Mb/s for eac one       Re-multiplexer     2×slot for 2 TS multi-program decryptio support EN 50221       BISS     One multi-program decryption support BISS-1 and BISS-E mode       ASI Output       Connector Type     2 pairs, 4 x BNC female, 75Ω	for each IP interface
TS Processing  Re-multiplexer  Common interface  BISS  ASI Output  Connector Type  ARP  2×re-multiplexer up to 200Mb/s for eac one 2×slot for 2 TS multi-program decryptio support EN 50221 One multi-program decryption support BISS-1 and BISS-E mode 2×slot for 2 TS multi-program decryption support BISS 2 one multi-program decryption support BISS-1 and BISS-E mode 2 pairs, 4 x BNC female, 75Ω	
Re-multiplexer     2×re-multiplexer up to 200Mb/s for eac one       Common interface     2×slot for 2 TS multi-program decryptio support EN 50221       BISS     One multi-program decryption support BISS-1 and BISS-E mode       ASI Output       Connector Type     2 pairs, 4 x BNC female, 75Ω	ARP
Re-multiplexer     one       Common interface     2×slot for 2 TS multi-program decryptio support EN 50221       BISS     One multi-program decryption support BISS-1 and BISS-E mode       ASI Output       Connector Type     2 pairs, 4 x BNC female, 75Ω	2xra-multiplayer up to 200Mh/s for acc
Common Interface         support EN 50221           BISS         One multi-program decryption support BISS-1 and BISS-E mode           ASI Output         2 pairs, 4 x BNC female, 75Ω	
BISS One multi-program decryption support BISS-1 and BISS-E mode  ASI Output  Connector Type 2 pairs, 4 x BNC female, 75Ω	
BISS         BISS-1 and BISS-E mode           ASI Output         Connector Type         2 pairs, 4 x BNC female, 75Ω	support EN 50221
Connector Type 2 pairs, 4 x BNC female, 75Ω	
	One multi-program decryption support
	One multi-program decryption suppor BISS-1 and BISS-E mode
BISS ASI Output Connector Type	

Output Bit Rate HDMI Output	≤ 200Mb/s
Standard	1×HDMI 1.4 interface (up to 1080i)
Video Resolution and Frame Rate	1080i×60,1080i×30,1080i×29.97,1080× 25,720p×60,720p×59.94,720p×50,480p
Audio Embedded	×60,576p×50,576i×25,480i×29.97 1×stereo
HD/SD-SDI Output	1 de la constant de l
Connector Type	1 pairs BNC female, 75Ω
SD Standard	SMPTE 259M, 270 Mb/s (10bit)
HD Standard	SMPTE 292M, 1.485 Gbit/s (10bit)
Audio Embedded	2×audio PIDs are embedded with PCM or passed through
Level	800mV p-p
Genlock	
Connector Type	1 x BNC female, 75Ω
Input Signal	Analog SD (black & burst)
Video Decode	
Video Profile/Level	MPEG-2 SP@ML, MP@HL MPEG-4 SP@L0-3, ASP@L0-5, GMC, H.264 BP/MP/HP@ level 5.0, H.265 Main Profile@L5.0 High-tier
Audio Decode	<u>2</u> 00aaaaa.
	MPEG-1 Layer 2 a. 2 stereo pairs (Stereo, Dual Mono, Left, Right) MPEG-2 AAC
Audio Format	a. 5.1 down-mix to 2.0 (Stereo, Dual Mono, Left, Right) b. 2.0 (Stereo, Dual Mono) MPEG-4 HE-AAC v1/v2
	<ul><li>a. 5.1 down-mix to 2.0 (Stereo, Dual Mono, Left, Right)</li><li>b. 2.0 (Stereo, Dual Mono, Left, Right)</li></ul>
Analog video Output	
CVBS Connector	1×BNC female 75Ω for Master, 1×RCA female 75Ω for Monitor
CVBS Standard	NTSC, PAL, and SECAM
CVBS Resolution	576i×25, 480i×29.97
Nominal Output Level	1.0 Vp-p±5% (with standard test pattern)
Frequency Response	<±1 dB, at 5.5 MHz for PAL/SECAM, 4.2MHz for NTSC
Chroma-Luma Delay	<±30 ns
Field Time Distortion	<2%
Line Time Distortion	<1%
Short Time Distortion	<2%
Differential Gain	<3%
Differential Phase	<2°
Signal to Noise Ratio	>55dB (luminance weighted)
Analog Audio Output	
Connector Type	2×BNC female for audio-1, 2×RCA female for audio-2
Output Impedance	RCA, BNC(L&R), 75Ω 2×D-Sub 9, 600Ω
Output Mode	Left, Right, Dual Mono, Stereo
Cross Talk Among Channels	>70dB
THD	<0.3% @ 400Hz, 1KHz test tone
Frequency Response	±0.5dB over 20Hz ~ 18KHz
Output Level	0dBm in 600Ω (0dBu), adjustable range $0 \sim 63$ dB Attenuation
Ancillary Data Processing	
Subtitle	DVB, EBU
VBI	Teletext, WSS
	E14 000 E14 700 E11 000 : TOO

EIA 608, EIA 708, EIA 608-to-708

Closed Caption



# Digital TV Equipment and System

LVD: EN 60950-1:2006 + A11:2009

Redundancy	
Redundancy Port	among Tuner, ASI input and TS/IP input
Switching Condition	TS Sync Loss
Switching Mode	Main, Spare
Control & Monitoring	
Connector Type	1×RJ-45, 10/100 Base-T, for equipment IP Control & Monitoring
Remote Control	SNMP 2.0, HTTP (Web GUI)
Local Control	LCD display and Front control 6-key keypad
TFT monitor	Monitor video
Headphone Socket	Monitor audio-1 or audio-2 selectable
Serial Port	1×RS-232-M and 1×RS-232-S D-sub female, for debug use only
Equipment Upgrade	Telnet/FTP, WEB/HTTP or USB

Physical           Dimension         1U 19" Full-rack size, 445mm(Length) 320mm(Width) x 45mm(Height)           Weight         5.0Kg           Power Supply         AC 90V ~ 250V, 50/60Hz           Power Consumption         30W (exclusive of LNB power)           Operating temperature         0 ~ 45°C           Storage temperature         -10 ~ 60°C           Operating Humidity         10 ~ 90%, non-condensed           Certification           EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, El 61000-3-2:2006, EN 61000-3-3:2008           FCC: Part 15 Class B		
Dimension       320mm(Width) x 45mm(Height)         Weight       5.0Kg         Power Supply       AC 90V ~ 250V, 50/60Hz         Power Consumption       30W (exclusive of LNB power)         Operating temperature       0 ~ 45°C         Storage temperature       -10 ~ 60°C         Operating Humidity       10 ~ 90%, non-condensed         Certification         EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Physical	
Power Supply         AC 90V ~ 250V, 50/60Hz           Power Consumption         30W (exclusive of LNB power)           Operating temperature         0 ~ 45°C           Storage temperature         -10 ~ 60°C           Operating Humidity         10 ~ 90%, non-condensed           Certification           EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, Ef 61000-3-2:2006, EN 61000-3-3:2008	Dimension	1U 19" Full-rack size, 445mm(Length)x 320mm(Width) x 45mm(Height)
Power Consumption 30W (exclusive of LNB power)  Operating temperature 0 ~ 45°C  Storage temperature -10 ~ 60°C  Operating Humidity 10 ~ 90%, non-condensed  Certification  EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Weight	5.0Kg
Operating temperature 0 ~ 45°C Storage temperature -10 ~ 60°C Operating Humidity 10 ~ 90%, non-condensed  Certification  EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Power Supply	AC 90V ~ 250V, 50/60Hz
Storage temperature -10 ~ 60℃  Operating Humidity 10 ~ 90%, non-condensed  Certification  EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Power Consumption	30W (exclusive of LNB power)
Operating Humidity 10 ~ 90%, non-condensed  Certification  EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Operating temperature	0 ~ 45℃
Certification EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Storage temperature	-10 ~ 60℃
EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EI 61000-3-2:2006, EN 61000-3-3:2008	Operating Humidity	10 ~ 90%, non-condensed
61000-3-2:2006, EN 61000-3-3:2008	Certification	
FCC: Part 15 Class B	61000-3-2:2006, EN 61000-3	· · · · · · · · · · · · · · · · · · ·
	FCC: Part 15 Class B	

### Back panel Interface (Full option)

