

IRD Integrated Receiver Decoder

RECEIVER, PROCESSOR, DECODER, STREAMER



IRD-2000 Professional HEVC/h.264/MPEG2 IRD and Processor

The IRD-2000 is a cost effective professional integrated receiver decoder. It is widely used in the satellite, cable and terrestrial TV network equipped with different tuner, as DVB-S2/S, DVB-C and DVB-T. It demodulates the RF signal to the transport stream with ASI and TS/IP. With dual DVB common slots, IRD-2000 works with most of the well-known CAS in the market and decrypts multiple services in a transport stream. The decoder can process a variety of digital video formats in MPEG-4 AVC/H.264, MPEG-2 and H.265, in SD (Standard Definition) or HD (High Definition).

The selectable TV channel is decoded to digital and analog outputs: HDMI, CVBS, balanced and un-balanced audio. The powerful demodulation, decryption and decoding capabilities, combined with user friendly WEB GUI and SNMP based remote control makes this equipment one of the most competitive professional IRD in the market.

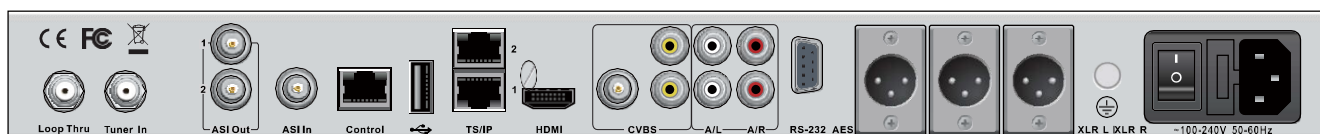
Main Features – full equipped

- Different input options available: DVB-S/S2/S2x or DVB-C/T(2) or ATSC, ISDB-T; TS/IP and ASI
- Optional HW features can be selected when ordering
- Supports DVB-S2 Input Stream Identifier and DVB-T SFN MIP pass through
- SD/HD MPEG-2, MPEG-4 AVC/H.264, HEVC/H.265 video decoding
- Analog and Digital Video Outputs, ASI, CVBS (Downscaling from HD), HDMI, TS/IP
- Built-in TS re-multiplexer receives from ASI, Tuner and TS/IP Inputs
- 2x DVB-CI Slots, support for all major CAS and CAM's, BISS-1 and BISS-E de- scrambling
- 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
- One alarm Relay with D-sub 9 male connector
- On-Site software update through IP and USB
- RSSI, received Eb/No & BER monitoring
- Two digital Audio channels decoding of MPEG1 Layer II, AAC and AC3 Dolby Digital
- 2x (un-) balanced Audio out, 4x RCA and 2x XLR

Available Frontends:

DVB-S/S2/S2X	
Input Frequency Range	950...2150MHz
Input Level	-65...-25dBm
Symbol Rate	1 ... 60MSps
Modulation Type	QPSK, 8PSK, 16APSK, 32APSK, 64APSK
LNB Polarity Selection Voltage	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable, DiSEqC 1.0
PLS	0 ... 262141 -users configurable
ISI ID	1...255 -user configurable
DVB-C	
Input Frequency Range	42...1002MHz
Input Level	-60...-20dBm
Symbol Rate	1.8...7.2MS/s
Bandwidth	6/7/8MHz
Modulation Type	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
DVB-T/T2	
Input Frequency Range	42...1002MHz
Input Level	-60...-20dBm
Modulation Type	QPSK, 16QAM, 64QAM
Bandwidth	6/7/8MHz
FFT Mode	2K, 8K
Guarding Interval	1/4, 1/8, 1/16, 1/32
Input Return Loss	7dB (typ.)
DTMB	
Input Frequency Range	44...1002MHz
Input Level	-60...-20dBm
Bandwidth	6/7/8MHz
Modulation Type	4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM
ISDB-T	
Input Frequency Range	42...1002MHz
Input Level	-60...-20dBm
Standard	ARIB STD-B31 v2.2
Bandwidth	6/7/8MHz
Modulation Type	QPSK, 16QAM, 64QAM
FFT Mode	2K, 4K, 8K

Rear panel (Full equipped):



Specifications:

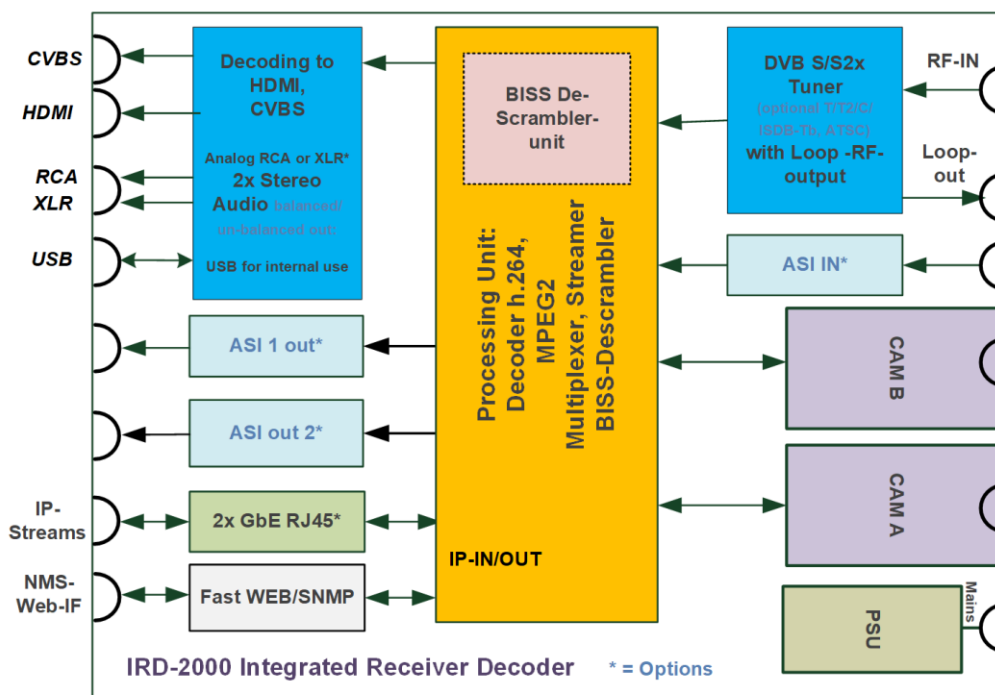
Tuner Input	
DVB-S/S2 Tuner Input (ISI Factory Optional)	
Connector Type	2× F type female 75Ω for Input and loop
Input Frequency Range	950 ... 2150MHz
Input Level	-25 ... -65dBm
Symbol Rate	1 ... 45Msps
Roll-off Factor	DVB-S: 0.35
	DVB-S2: 0.35, 0.25, 0.2
FEC Code Rate	DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection Voltage	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
ISI ID	1 ... 255 users configurable
DVB-S/S2/S2x Tuner Input (Standard)	
Connector Type	2×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	950 ... 2150MHz
Input Level	-25 ... -65dBm
Symbol Rate	QPSK/8PSK/16APSK: 2 ... 45Msps
	32APSK: 2 ... 37Msps
Roll-off Factor	DVB-S: 0.35
	DVB-S2: 0.35, 0.25, 0.2
FEC Code Rate	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2: 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
DVB-C Tuner Input (Multituner C/T/T2)	
Connector Type	2×F type female 75Ω for Input
Input Frequency Range	51 ... 1002MHz

Input Level	45 ... 75dBμV
Symbol Rate	1 ... 7MBaud (DVB-C ITU J.83 Annex A)
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Bandwidth	6MHz, 7MHz, 8MHz
Input Return Loss	7dB (typ.)
DVB-T/T2 Tuner Input	
Connector Type	2×F type female 75Ω for Input
Input Frequency	104 ... 1002MHz (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
Guarding Interval	DVB-T: 1/4, 1/8, 1/16, 1/32
	DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32, 1/64, 1/128
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	7dB (typ.)
ASI Input	
Connector Type	1×BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Input Bit Rate	≤ 200Mb/s
TS over IP	
Connector Type	2×RJ-45 independent, 100/1000 Base-T for TS/IP
Effective Bit Rate	350Mb/s, Full duplex, 32 output streams, 2 input streams
Protocols	UDP / RTP, Multicast / Unicast, IGMPv3, ARP
FEC	SMPTE 2022 (former ProMPEG) 1 Dimensional and 2 Dimensional, auto-adaptive settings for the inputting TS (Note: under full duplex mode only, max effective bit rate 150Mb/s for both input & output)
TS Processing	
TS Input Management	De-mux and Re-mux among Tuner, ASI and TS/IP Inputs
TS Output Management	De-mux and Re-mux for 2 independent ASI outputs
Service and PID Management	2 independent Re-mux (120Mx2), filtering and remapping

PSI/SI	PSI/SI table regeneration, NIT and SDT edition, LCN Edition and Re-generation, EIT P/F edition
Descrambler	DVB Common Scrambling Algorithm (CSA)
BISS Mode	BISS-1, BISS-E
Common Interface	Double PCMCIA slots, compatible with major CA CAMs in the market
ASI Output	
Connector Type	2 x BNC female, 75Ω, parallel
Standard	DVB-ASI, EN50083-9
Output Bit Rate	≤ 200Mb/s
HDMI Output	
Standard	1× HDMI 1.4 interface
Video Resolution and Frame Rate	1080p60, 1080i60, 1080i50 ...25, 720p60, 720p50, 480p, 576p, 576i25, 480i29.97
Audio Embedded	one digital audio pass through
Video Decode	
Video Profile/Level	MPEG-2(MP@ ML for SD, MP@HL for HD)
	MPEG-4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD), HEVC (main and main 10 profile, main/ high tier up to level 4.1)
Audio Decode	
Audio Format	MPEG-1 Layer 2
	a. 2 stereo pairs (Stereo, Dual Mono, Left, Right)
	MPEG-2 AAC
	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
	a. 5.1 down-mix to 2.0 (Stereo, Dual Mono, Left, Right)
	b. 2.0 (Stereo, Dual Mono, Left, Right)
Analog video Output	
CVBS Connector	1×BNC 1xRCA female 75Ω
CVBS Standard	NTSC, PAL, and SECAM, downscaling from HD supported
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	2x2 RCA female, 2x XLR
Output Impedance	75Ω
Output Mode	Left, Right, Dual Mono, Stereo
Number of Output	2 pairs of stereo audio outputs (2 Audio PIDs or 4 channels are decoded)
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 ±10dB
Control & Monitoring	
Connector Type	1xRJ-45, 10/100 Base-T, for equipment IP Control & Monitoring
Remote Control	SNMP 2.0, HTTP (Web GUI), Proprietary HDMS (Headend Device Management System)
Local Control	Front control by 6-button keypad, LCD
Serial Port	1xRS-232 D-sub female, for debug use only
Equipment Upgrade	FTP loader or USB
Physical	
Dimension	1U 19" Full-rack size, 483mm (Length)x 255mm (Width) x 44mm (Height)
Weight	2.4Kg net, 4.4kg gross
Power Supply	AC 90V ... 250V, 50/60Hz
Power Consumption	24W (exclusive of LNB power)
Operating temperature	0 ... 45°C
Storage temperature	-10 ... 60°C
Operating Humidity	10 ... 90%, non-condensed

Block diagram:



Ordering options:

Interface	IRD-2010	IRD-2012	IRD-2020	IRD-2022
ASI -IN	-	-	X	X
ASI -Out	-	-	X	X
AES/EBU-Audio	-	-	X	X
TSoVerIP	-	X	-	X
Tuner-Version	Standard: DVB-S2x Optional: DVB-C/T/T2 or ATSC or ISDB-Tb or DTMB			

All technical changes w/o subject to notifications.