

IRD-3811

Integrated receiver/decoder with ASI and RF inputs



The IRD-3811 combines RF demodulation, MPEG-2 and H.264 decoding of ASI transport streams to either HD or SD. It also offers processing of key video and audio parameters, and signal probing functions for feed aggregation, distribution, and monitoring applications by broadcasters and TV services providers.

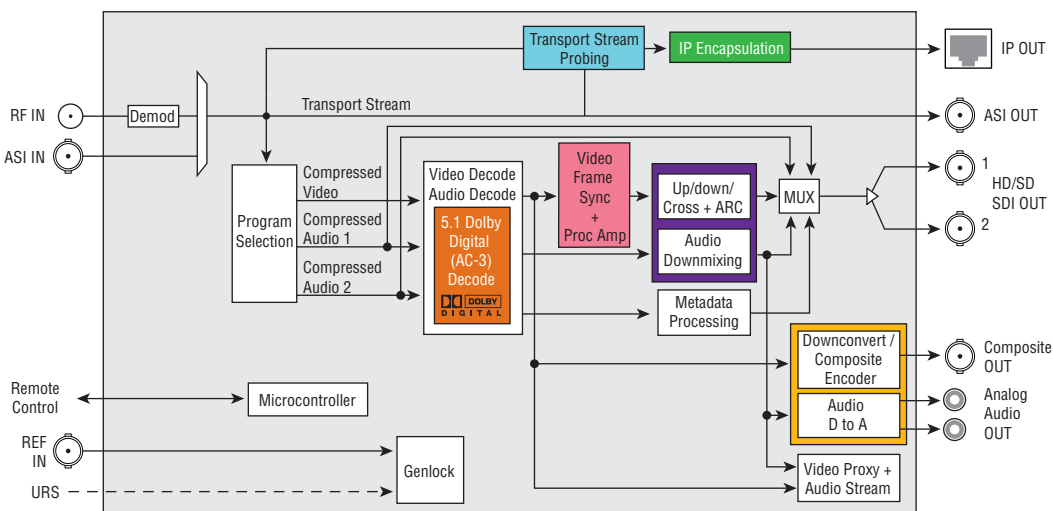
DVB-ASI, ATSC off-air or DVBS/S2 satellite signals fed to the IRD-3811 can be demodulated and decoded to provide either HD or SD video with embedded multi-channel audio, in all leading formats, as well as composite video and stereo analog audio for monitoring. The IRD is also available with a DVB-CI slot, supporting leading Conditional Access Systems, and allowing descrambling of multiple encrypted services. With its optional Gigabit Ethernet port, the IRD-3811 can also act as a gateway, by performing IP encapsulation of the input transport stream in either RTP or UDP mode.

The IRD also provides optional video signal processing with frame synchronization and selectable delay as well as proc-amp, up/down/cross

conversion and aspect ratio conversion. The IRD can decode an extensive range of Metadata, such as CEA-608 compliant Closed captioning, Teletext, AFD, V-chip and DVITC Time Code, which can be embedded in the decoded SDI signal. Transport Stream Metadata, such as PSIP can also be analyzed.

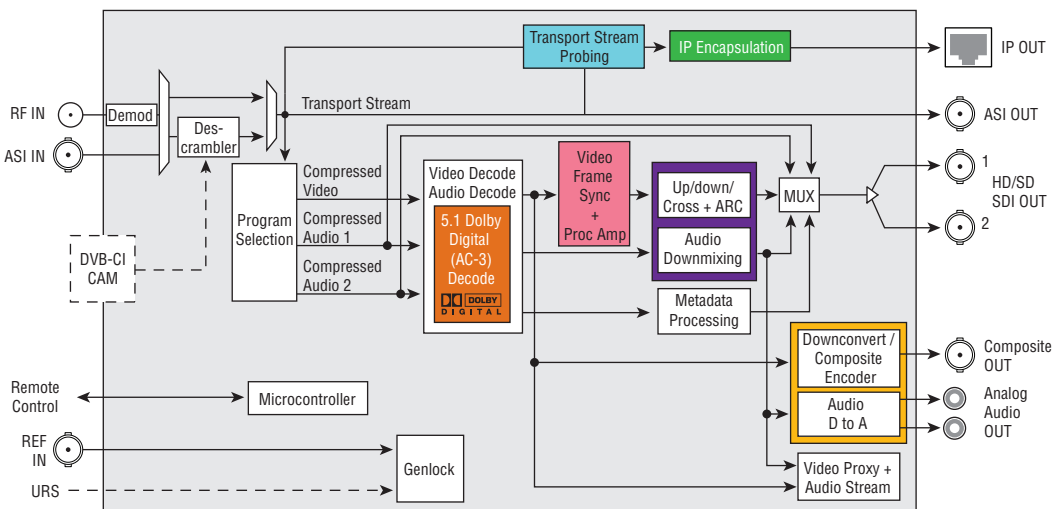
The audio processing capabilities of the IRD-3811 are also extensive, with dual audio decoding and selectable stereo downmix modes of decoded MPEG-1 and Dolby Digital (AC-3) 2.0 audio. Optionally, the IRD-3811 also performs embedding of decoded of Dolby Digital (AC-3) 5.1 audio, with discrete 8-channel output.

In addition, the IRD-3811 performs a wide range of signal quality probing, with user-defined alarm settings on an extensive range of transport stream parameters, including TR 101290 alarms, transport stream structure analysis and individual program statistics. The IRD also generates low-resolution H.264 video proxy and 2-channel audio streams of selected programs for monitoring.

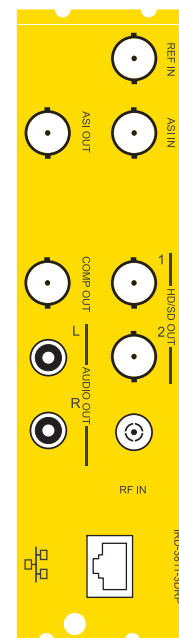


IRD-3811-VQ & IRD-3811-DVB-S2 Functional Block Diagram

- Options**
- IRD-38NN-OPT-FS: Frame Synchronization and Delay Option with Reference and Genlock
 - IRD-38NN-OPT-ANA: Composite and Analog Audio Output Option
 - IRD-38NN-OPT-TS-PROBE: Transport Stream Probing Option
 - IRD-38NN-OPT-DOLBY: Dolby Digital (AC-3) 5.1 Audio Decoder Option
 - IRD-38NN-OPT-ETH: Ethernet Output Option for IRD-3811
 - IRD-38NN-OPT-UDC: Up/Down/Cross Converter Option with Advanced Audio Proc



IRD-3811-VQ-CI & IRD-3811-DVB-S2-CI Functional Block Diagram



IRD-3811-3DRP

KEY FEATURES AND BENEFITS

Input/output versatility

- › Single 8VSB or QPSK/8PSK RF input
- › Single ASI transport stream input
- › Single ASI transport stream output for signal monitoring or retransmission
- › Optional IP transport stream output: ASI signal can be re-transmitted as IP. IRD acts as IP video gateway with forward error correction (FEC) for improved quality
- › Dual HD/SD SDI outputs
- › Composite video and stereo analog audio monitoring outputs

Conditional access

- › DVB-CI common interface slot allow insertion of CAM card
- › Allow descrambling of multiple programs encrypted by leading DVB Conditional Access Systems
- › Supports BISS-1

RF input monitoring

- › Automatic detection of RF loss
- › Convenient auto-scan mode for detection of valid signals
- › Monitoring of input signal strength, bit error rate (BER) and carrier to noise ratio (CNR)

Easy input and program selection

- › Manual or automatic input selection mode
- › Automatic mode allows switching to backup input upon loss of signal on active input, with adjustable duration
- › Program selection using local control or iControl
- › Extensive transport stream structure is displayed allowing easy identification of individual programs in an MPTS
- › MPTS automatic program selection mode and recovery

Extensive video decoding

- › The IRD can decode signals in various resolutions extending to 1920x1080i, and at various frequencies. Output formats include:
 - 1920x1080i 59.94
 - 1280x720p 59.94
 - 720x486i 59.94
 - 1920x1080i 50
 - 1280x720p 50
 - 720x576i 50
- › Support of unscrambled DigiCipher II streams

Comprehensive dual program audio decoding

- › Decoding of MPEG-1 Layer 2 stereo audio
- › Support of Dolby Digital (AC-3) 2.0 audio
- › Optional decoding and embedding of Dolby Digital (AC-3) 5.1 audio to SDI with support of main and associated audio services for up to discrete 8-channel output
- › Selectable passthrough of Dolby Digital stream to SDI
- › Decoding of AAC Audio for 2/0 and 1/0 coding modes

Frame synchronizer/delay, reference input and video proc

- › Supports timing, full phasing and freeze modes
- › Reference can be external via BNC connection, internal using Densité REF-1801 module or directly from the decoded signal with selectable Genlock modes
- › Video proc amp functions including, brightness, saturation, hue and contrast

Decoded video format identification

- › Convenient identification of key video parameters
 - Aspect ratio identification: 16:9 or 4:3
 - Video resolution

Video up/down/cross conversion

- › Extensive selection of video format conversions

Input	Output	SD		HD			
		525	625	720p50	720p59.94	1080i50	1080i59.94
SD	525	X			X		X
	625		X	X		X	
HD	720p50		X	X		X	
	720p59.94	X			X		X
	1080i50		X	X		X	
	1080i59.94	X			X		X

IRD-3811 up/down/cross Conversion Format Chart

Audio processing and format identification

- › Provides downmix of 5.1 channel to Lt/Rt or Lo/Ro modes
- › Extensive Dolby Digital Status reporting, including:
 - Service and Source Channel ID
 - Sample rate detection
 - Low Frequency Effect (LFE) presence detection
 - Bit rate reporting
- › Support for Secondary Audio Program (SAP)
- › Configurable Dolby Digital dynamic range and compression
- › Dolby Metadata embedding on SDI

Metadata extraction, display and embedding

- › The following can be extracted from the TS and embedded in SD-SDI or HD-SDI signal:
 - EIA-608 and EIA-708 closed captioning
 - WST Teletext
 - SMPTE 12M Time Code
- › SMPTE 2016 AFD flag
- › Extensive PSIP data extraction, including:
 - Time and date and other STT data
 - Channel number and other VCT parameters
 - Even iption and EIT Event Information Table
 - Rating and other RRT data
 - TSID

Transport stream probing and alarming

- › Transport Stream (TS) monitoring and alarming and settings:
 - TR 101 290 priority 1 and priority 2 alarming on key parameters
 - TS Bit rate
 - TS ID and number of programs as identified in PAT
 - Network ID and name as identified in NIT
 - Logging of alarms using iControl
- › Detailed TS structure reporting using graphical and hierarchical views
- › Individual program data statistics, including individual program bit rate, content and PMT data
- › IRD generates low-resolution H.264 video proxy and 2-channel audio streams of selected programs for monitoring

TECHNICAL SPECIFICATIONS

8VSB/QAM INPUT (IRD-3811-VQ only)

Quantity/
connector: One input with F-type connector, 75 ohm
Tuning range: 51 MHz-858 MHz
Input level: -27 dBmV to +33 dBmV

QPSK/8PSK INPUT (IRD-3811-DVB-S2 only)

Quantity/
connector: One input with F-type connector, 75 ohm
Demodulation: DVB-S (QPSK) ETSI EN 300 421
DVB-S2 (QPSK/8PSK) ETSI EN 302 307
Tuning range: 940 to 2150 MHz (in 0.5 MHz steps)
Symbol rate range: DVB-S: 2 to 45 MSymbols/s
DVB-S2: 10 to 30 MSymbols/s
Input level: -25 dBm to -65 dBm

ASI INPUT

Quantity/
connector: One input with BNC connector
Standards: EN50083-9 (V2:3/98) DVB ASI
Data bit rate: DVB ASI: Up to 80 Mbps
Mode: Burst and byte supported
TS packet length: 188/204 byte packets
Return loss: >15 dB up to 270 MHz

ASI OUTPUT

Quantity/
connector: One output with BNC connector

IP OUTPUT

Quantity/
connector: One Gigabit Ethernet with RJ45
connector IEEE 802.3
Standards: Pro-MPEG Code of Practice 3 (CoP3)
Stream protocols: IP/UDP, RTP and IGMPV3

VIDEO DECODER

Compatibility
standard: H264/AVC
MPEG-2 compatible MP@H
4:2:0, resolution up to 1080i, 59.94 Hz
ATSC A/53
Dual Dolby Digital passthrough
Bit rate: Up to 25 Mbps

AUDIO DECODER

Standard: MPEG-1 layer-II
Dolby Digital (AC-3) audio 2.0
Optional Dolby Digital (AC-3) audio 5.1
AAC audio 2/0 and 1/0
Service/channels: As per ATSC A/54A

VIDEO OUTPUTS

HD/SD SDI
outputs: Two outputs with BNC connectors
Signal: SMPTE-259-C (270 Mbps)
SMPTE 292M (1.485, 1.485/1.001 Gbps)
Supported
formats: SD: 480i59.94, 576i50
HD: SMPTE 274M: 1080i59.94, 1080i50
HD: SMPTE 296M: 720p59.94, 720p50
Embedded audio: SMPTE-299M, SMPTE-272M
Return loss: >15 dB up to 1.5 GHz
Jitter: <0.2 UI as per SMPTE-259M-C for SD
output
<0.2 UI as per SMPTE-292M for HD
output

MONITORING OUTPUTS

Analog video: NTSC 525/60, PAL (625/50) with one
BNC connector
Analog audio: Unbalanced analog audio with two RCA
connectors

VIDEO AND TS METADATA

CC data
extraction: NTSC CC1 and CC2 as per EIA-608B
DTV CC: EIA-608B compliant bytes of
EIA-708B
CC embedding: CC Embedding as per SMPTE-334M
Teletext: WST/EIA 300 706
Time Code: SMPTE 12M
PSIP: ATSC PSIP Standard A/65

REFERENCE INPUT

Reference input: One input with BNC connector
Signal: SMPTE 170M/SMPTE 318M/ITU 624-4/
BUT 470-6 black burst
SMPTE 274M/SMPTE 296M tri-level
synch (black)
Return loss: >35 dB up to 5.75 MHz

ELECTRICAL

Power: 25 W



ORDERING INFORMATION

Densité 3 frame

IRD-3811-VQ	Integrated receiver/decoder with ASI and 8VSB inputs
IRD-3811-DVB-S2	Integrated receiver/decoder with ASI and QPSK/8PSK inputs
IRD-3811-DVB-S2-CI	Integrated receiver/decoder with ASI, QPSK/8PSK inputs and DVB-CI support
IRD-3811-3DRP	Double rear connector panel

Options

IRD-38NN-OPT-FS	Frame synchronization and delay option with reference and Genlock
IRD-38NN-OPT-ANA	Composite and analog audio output option
IRD-38NN-OPT-UDC	Up/down/cross converter option
IRD-38NN-OPT-TS-PROBE	Transport stream probing option
IRD-38NN-OPT-DOLBY	Dolby Digital (AC-3) 5.1 audio decoder option
IRD-3811-OPT-ETH	Gigabit Ethernet output option for IRD-3811

Related products

Densité REF-1801 reference module

Remote control

iControl, iControl Solo, RCP-200