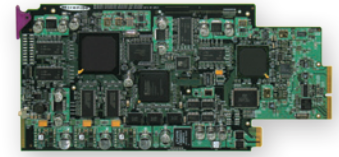


# IRD-3811

## Integrated receiver/decoder with ASI and RF inputs



The IRD-3811 combines RF demodulation and MPEG-2 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.

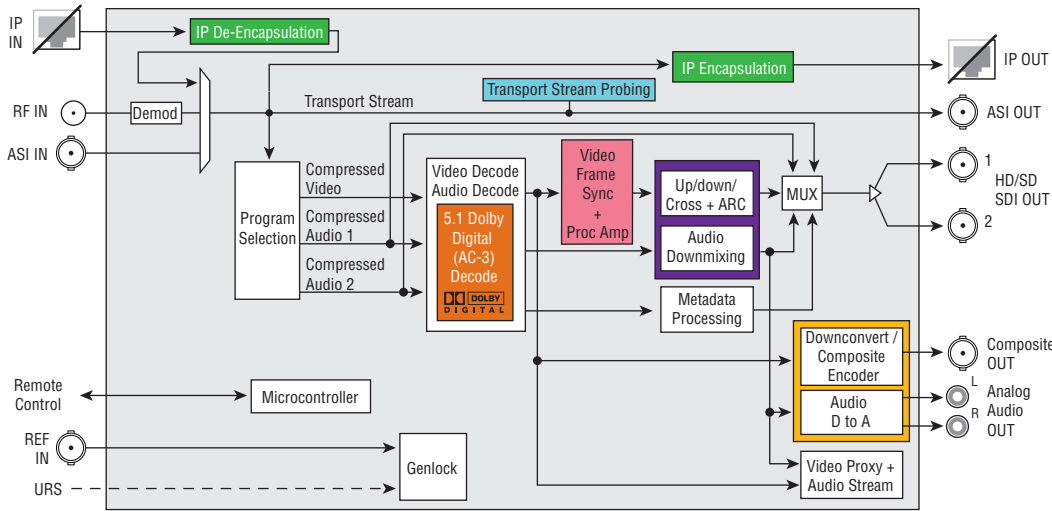
DVB-ASI, ATSC off-air or DVBS/S2 satellite signals fed to the IRD-3811 can be demodulated and decoded to provide either HD or SD video with embedded multi-channel audio, in all leading formats, as well as composite video and stereo analog audio for monitoring. The IRD is also available with a DVB-CI 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.

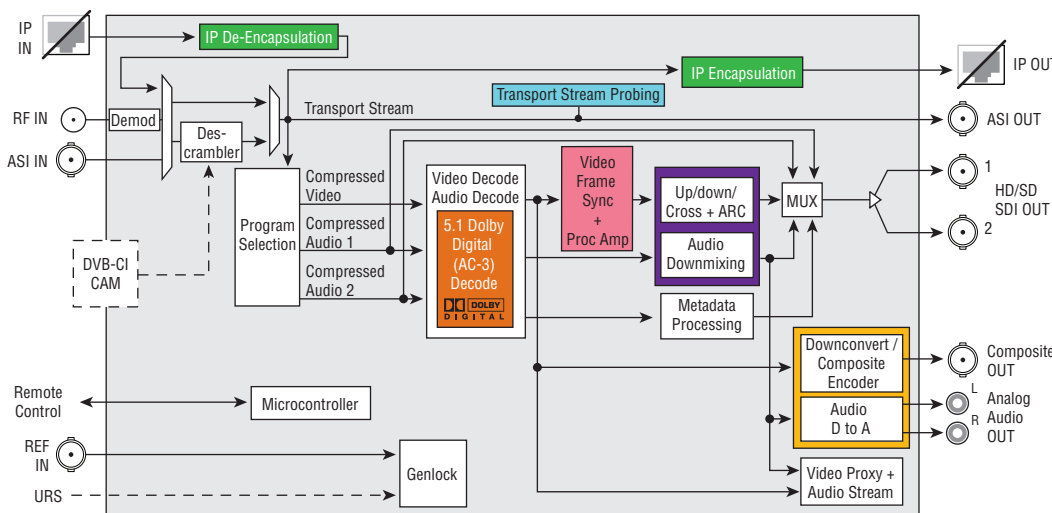
The audio processing capabilities of the IRD-3811 are also extensive, with dual audio decoding and selectable stereo downmix modes of decoded MPEG-1 and Dolby Digital (AC-3) 2.0 audio. Optionally, the IRD-3811 also performs embedding of decoded of Dolby Digital (AC-3) 5.1 audio, with discrete 8-channel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

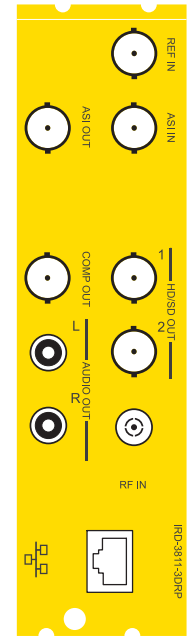


IRD-3811-VQ & IRD-3811-DVB-S2 Functional Block Diagram

- 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 Input/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

### 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

### 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

## IRD-3811 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: 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, 1.485/1.001Gbps)  
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  
sync (black)  
Return loss: >35 dB up to 5.75 MHz

### ELECTRICAL

Power: 25 W



## ORDERING INFORMATION

| Densité 3 frame    | Description   | Options                 | Description   |
|--------------------|---|-------------------------|---|
| IRD-3811-VQ        | Integrated receiver/decoder with ASI and 8VSB inputs                      | IRD-38NN-OPT-FS         | Frame synchronization and delay option with reference and Genlock |
| IRD-3811-DVB-S2    | Integrated receiver/decoder with ASI and QPSK/8PSK inputs                 | IRD-38NN-OPT-ANA        | Composite and analog audio output option                          |
| IRD-3811-DVB-S2-CI | Integrated receiver/decoder with ASI, QPSK/8PSK inputs and DVB-CI support | IRD-38NN-OPT-UDC        | Up/down/cross converter option                                    |
| IRD-3811-3DRP      | Double rear connector panel   | 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                       |
|                    |   | <b>Related products</b> | Densité REF-1801 reference module                                 |
|                    |   | <b>Remote control</b>   | iControl, iControl Solo, RCP-200                                  |