

Guide to ProView™ Integrated Receiver-Decoders



harmonic®

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Introduction



Harmonic ProView IRDs harness a flexible and modular design to address the vast spectrum of content reception applications, from decoding, descrambling and multiplexing of multiple transport streams to MPEG-4 to MPEG-2 transcoding. As part of a complete portfolio of reception solutions, ProView IRDs help simplify the deployment of (or migration to) an all-IP headend solution and power the launch of added-value services. Their flexible hardware design is easily reconfigured with firmware upgrades, enabling seamless adaptation to new inbound video formats and codecs, such as MPEG-4 AVC and HEVC.

ProView IRDs integrate seamlessly with Harmonic's DMS™ video distribution management system. Ideal for content distribution to operators, affiliates and service providers, the DMS system offers over-the-air, in-band control of large populations of ProView IRDs, whether located in a headend or a remote transmitter site.

ProView 7100

Integrated Receiver-Decoder, Stream Processor and Transcoder

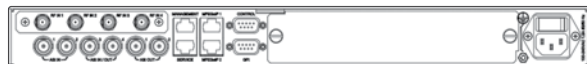


Pristine video quality, descrambling, transcoding and remultiplexing for high-end distribution applications

The ProView 7100 is the industry's first single-rack-unit, scalable, multiformat IRD, transcoder and MPEG stream processor. Leveraging Harmonic expertise in Intelligent Function Integration, it adds broadcast-quality SD/HD MPEG-2 and MPEG-4 AVC decoding and video transcoding to the ProView platform, allowing content providers, broadcasters, cable MSOs and telcos to easily and cost-effectively streamline their workflows and decrease operating costs. For applications in which preserving pristine video quality is paramount, the ProView 7100 supports HEVC 4:2:2 10-bit decoding of resolutions up to 1080p60.

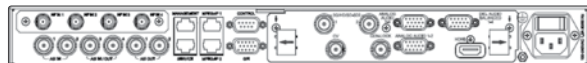
- Fully integrated platform combines all headend reception functionality with any-to-any remultiplexing
- MPEG-2 and MPEG-4 AVC SD/HD 4:2:0 and 4:2:2* 10-bit decoding
- Four TS descramblers with four integrated DVB-CI slots
- Four stereo pairs of audio decoding
- High-quality H.264-to-MPEG-2 transcoding with down-conversion option
- T2-MI deframing to MPEG TS
- Six ASI ports: two inputs, two outputs, two bi-directional (configurable as inputs or outputs)
- Four in/out SPTS with 1+1 redundancy support
- HD-SDI, SD-SDI, HDMI and analog video outputs

ProView 7100 Descrambler (up to four TS w/ full remux)



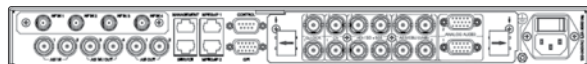
With option to add eight transcoding channels

ProView 7100 Single-Channel Decoder (4:2:0/4:2:2*)



With option to add four transcoding channels

ProView 7100 Dual-Channel Decoder (4:2:0)



ProView 8100

Commercial Integrated Receiver-Decoder



High-quality, all-purpose decoding and descrambling for day-to-day primary distribution

The ProView 8100 single-channel commercial decoder and descrambler is a compact, fully featured unit for general-purpose primary distribution applications. Workflow efficiency is a key trait of this advanced IRD. The ProView 8100 provides simultaneous HD-SDI and SD-SDI output with high-quality HD-to-SD down-conversion, allowing operators to use the same device to feed both the HD and SD production chains. Distribution of broadcast-quality video over the Internet is also supported.

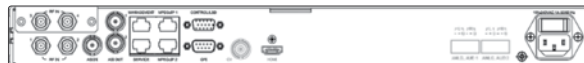
- Single-channel SD/HD MPEG-2/MPEG-4 AVC 4:2:0 decoding and descrambling
- DVB-S/S2, DVB-ASI and IP input
- Simultaneous HD-SDI and SD-SDI output
- High-quality up/down-conversion
- 3G HD-SDI output supports 1080p60 workflows
- ASI, IP, HDMI and analog video outputs
- Integrated BISS and Verimatrix® support, dual DVB-CI slots
- Front-panel controls and intuitive, web-based GUI

ProView 8105 Descrambler



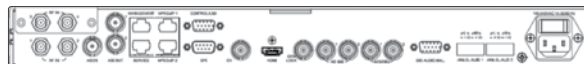
ASI, IP and MPE data outputs

ProView 8110 Descrambler and Analog Decoder



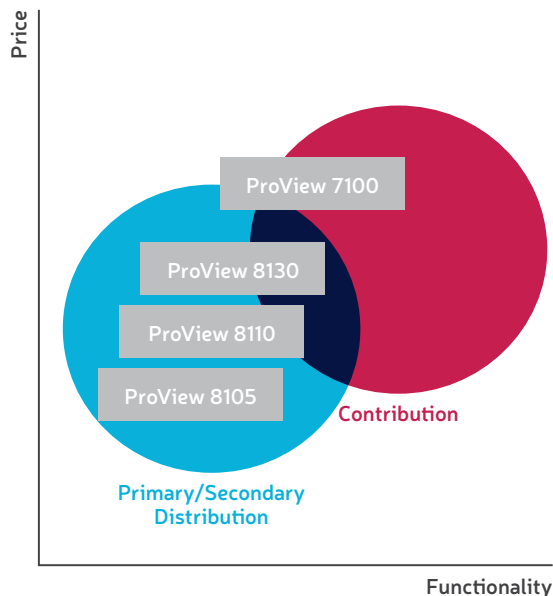
ASI, IP, MPE data, composite video, HDMI and two balanced analog audio outputs

ProView 8130 Descrambler and Analog/Digital Decoder



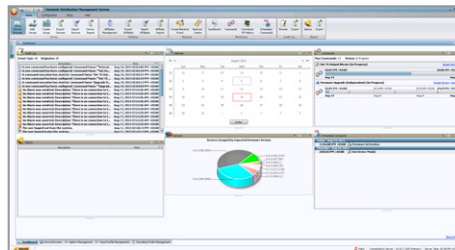
ASI, IP, MPE data, composite video, SDI, HDMI, genlock, two balanced analog and two balanced digital audio outputs

ProView Model Comparison



DMS

Video Distribution Management System

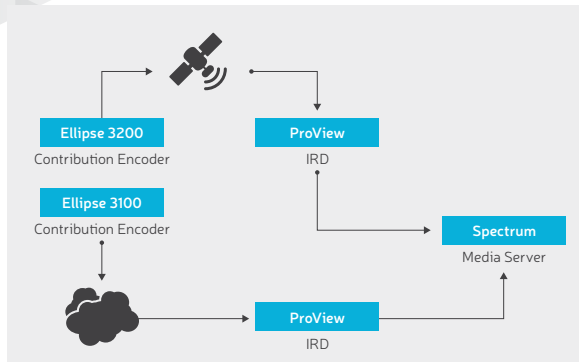


Centralized, over-the-air control of multiple ProView IRDs

Harmonic's DMS video distribution management system provides broadcasters and content providers with powerful control tools over large populations of ProView 7100 and 8100 IRDs. The software-based solution allows flexible device or group addressability, entitlements and authorization management, as well as over-the-air (OTA) in-band control of content distribution network (CDN) elements. It's ideal for applications such as content distribution to operators, affiliates and service providers, and distribution of digital terrestrial TV services.

- Integrates with DVB scrambling solutions for secure content delivery
- Enables secure broadcast of video content over satellite or IP delivery networks
- Provides individual or group entitlement control with any DVB-compliant conditional access (CA) system
- Provides regional program switching and blackout control
- Facilitates maintenance with device grouping and bulk operations
- Integrates with Verimatrix CAS
- Return channel for monitoring

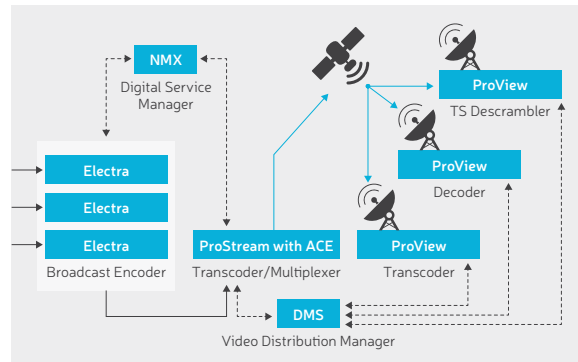
Applications: Contribution



ProView IRDs are ideal as part of a complete video contribution link that includes Harmonic Ellipse® 3000 contribution encoders. Choose ProView 8100 for single-channel 4:2:0 commercial decoding, and ProView 7100 for high-end single-channel 4:2:2*/4:2:0 or dual-channel 4:2:0 decoding.

- Simultaneous RF/IP/ASI inputs
- Input or service redundancy
- Extended audio capabilities
- Low delay modes
- Pluggable decoder module = investment protection (ProView 7100 for HEVC)
- Support for contribution via Internet (ProView 8100, with embedded Zixi™ technology)

Applications: Primary Distribution

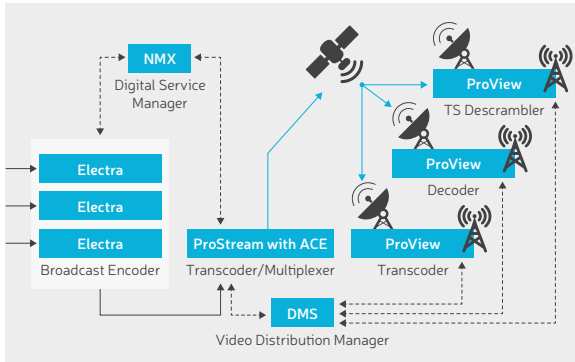


Harmonic offers a complete portfolio of ProView IRDs for primary content distribution to affiliate headends, sure to meet any customer's price and functionality requirements.

- Four independent inputs, DVB-S2/ASI/IP
- Four TS descrambling
- Multiformat decoding
- Eight-channel transcoder: AVC to MPEG-2 and MPEG-2 to AVC
- Full remultiplexing of four transport streams
- Standard DVB SimulCrypt decryption
- OTA control with Harmonic DMS video distribution management system
- Distribution over open Internet*

Applications: Secondary Distribution

(DTT Tower Reception)

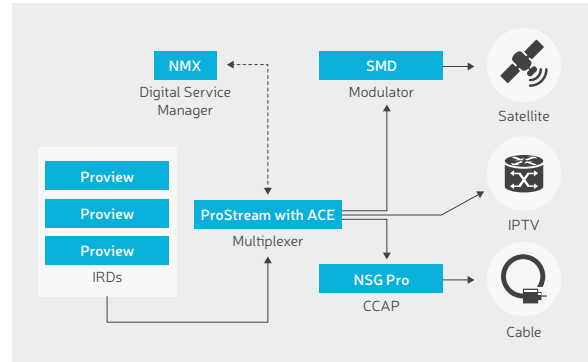


ProView IRDs are especially well-suited for secondary distribution applications, with capabilities including:

- Multi-TS reception and dual decoding
- Compatible with DVB-T and DVB-T2 for SFN/MFN networks
- Input redundancy
- Seamless switching
- Descrambling, including option for embedded Verimatrix CAS
- DVB-T2 de-framing
- SFN PID remapping (NIT, PMT, etc.)
- Regional content insertion in SFN/MFN networks
- Options for multiplexing and transcoding
- OTA control with Harmonic DMS video distribution management system

Applications: Distribution to All-IP Headends

(Digital Turnaround)



ProView features for IP headend reception include:

- Up to four DVB-S/S2 inputs
- Up to four DVB-CI CAM slots
- Modularity: ability to add decoders and transcoders (ProView 7100)
- Cost-effective: commercial decoding/full single TS (ProView 8100)

ProView Hardware & Firmware Comparison Chart

| | Feature Description | ProView 7100 | ProView 8105 | ProView 8110 | ProView 8130 |
|---|----------------------------------|--------------------------|--------------|--------------|--------------|
| Inputs | RF Ports | O (Up to 4) | B (2 ports) | B (2 ports) | B (2 ports) |
| | ASI Inputs | O (Up to 4) ³ | B (1 port) | B (1 port) | B (1 port) |
| | Single TS Processing | B | B | B | B |
| | Multiple TS Processing | 4 TS (L) | X | X | X |
| | IP Input (2x GBE) | L | L | L | L |
| IP FEC (input) – Open Internet | X | L | L | L | |
| TS Outputs | ASI Output Ports | B (4 ports) ³ | B (2 ports) | B (2 ports) | B (2 ports) |
| | IP Output (2x GBE) | B | B | B | B |
| Descrambling | CI Slots | B (4 slots) | B (2 slots) | B (2 slots) | B (2 slots) |
| | BISS Descrambling (full TS) | L ^{***} | L | L | L |
| | Multi-Descrambling (full TS) | L | L | L | L |
| | Verimatrix Embedded Descrambling | L | L | L | L |
| | Single Decoder Card | O | X | B | B |
| Video Decoder Outputs | Dual Decoder Cards (4:2:0 only) | O | X | X | X |
| | CV Output | O | X | B | B |
| | Analog Decoding 1xRGB-HD, D-Type | B | X | X | X |
| | SDI Output (HD/SD) | O | X | X | B |
| | HDMI Output (single) | O | X | B | B |
| | 3G-SDI Output | O | X | X | B |
| | SCTE-104 | B | X | X | B |
| | Genlock (sync lock) | B | X | X | L |
| | MPEG-2/4 SD Decoding 4:2:0 | B ¹ | X | B | B |
| | MPEG-2/4 HD Decoding 4:2:0 | L ¹ | X | L | L |
| HEVC HD Decoding 4:2:0 | L ¹ | X | X | X | |
| MPEG-2/4 SD/HD Decoding 4:2:2* (single decoder card only) | L ¹ | X | X | X | |

| | Feature Description | ProView 7100 | ProView 8105 | ProView 8110 | ProView 8130 |
|----------------|---|------------------------------|--------------|--------------|--------------|
| Audio Decoding | Audio Decoding (D-Type) and/or AC-3 2.0 Decoding ¹ | B (2 audios) L (4 audios) | X | B (2 audios) | B (2 audios) |
| | MPEG-1 Layer 2 Decoding ¹ and/or AC-3 2.0 Decoding ¹ | B ^{***} | X | B | B |
| | AAC (HE/LC) 2.0 Decode /5.1 Decode and Down-Mix ¹ | L | X | L | L |
| | Dolby® Digital 5.1 Passthrough ¹ | L | X | B | B |
| | Dolby-E Passthrough ¹ | L | X | X | X |
| Transcode | AAC (HE/LC) 5.1 Decode to Linear PCM or Dolby Digital 5.1 Decode to Linear PCM ¹ | L | X | L | L |
| | Dolby Digital Plus Decoding ¹ | X | X | X | X |
| | Hardware (single card up to 4 channels, or dual card up to 8 channels) | O ^{**} | X | X | X |
| Control | MPEG-4 SD Transcode (license per channel) | L ² | X | X | X |
| | MPEG-2/4 HD Transcode (license per channel) | L ² | X | X | X |
| | Ethernet/RJ45 10/100BaseT Control | B | B | B | B |
| Control | Web GUI | B | B | B | B |
| | Terminal RS-232 | B | B | B | B |
| | GPI for Alarms | B | B | B | B |
| | SCTE-35 to GPI | B | X | X | B |
| | T2-MI De-Framing | L | L | L | L |
| | MPE (high speed data) De-Encapsulation | L | B | B | B |

B Basic hardware
 O Optional hardware
 L Firmware license option
 x Not available

* Field upgradable
 ** In case of dual-transcode card, decoder card cannot be selected
 *** Basic when choosing decoding card

1 Requires decoding card
 2 Requires transcoding card
 3 Two of the ASI ports are bi-directional

World-Class Service & Support

Harmonic stands behind ProView IRDs — and all of its products — with comprehensive service and support programs, including system design, service deployment, technical support and network maintenance. World-class service plans and a global network of flexible and responsive support professionals help ensure your ability to deliver outstanding “anytime, anywhere, any-device” customer experiences.



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