The R&S®
Pronto family
Disk recorders and players

ROHDE & SCHWARZ

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Pronto family
Disk recorders
and players

- ı **Disk recorder for compressed and uncompressed SD, HD, 2K and 4K material in real time up to 60/120* fps**

- ı **Supports file-based workflows**

- ı **3D playout up to 4K 60 fps per eye***

- ı **Ordinary files on NTFS Windows® file system as native storage format**

- ı **Maximum flexibility with support of uncompressed file formats, compressed file formats and more than 100 graphic formats**

- ı **Capture and playout with all major codecs such as DNxHD®, DVCPRO®, DVCPRO HD®, MPEG IMX, MPEG 2 and uncompressed file formats such as DPX, TIFF, TGA and others**

- ı **RS-422 remote control**

- ı **Take advantage of the numerous editing and conforming features**

- ı **Realize large-screen projections with the multi-device feature**

The Pronto family

The benchmark of disk recorders and players

The Pronto family of digital disk recorders, comprised of the Pronto4K-HFR, Pronto4K and Pronto4 HDMI, combine state-of-the-art, reliable hardware with innovative software. Use the advanced Pronto disk recorder systems to realize demanding, professional broadcast, post production and presentation workflows. Are you looking for a system that enables realtime image processing and supports optimum image quality with uncompressed formats, from SD to 4K and that can handle 3D? The Pronto family of disk recorders offers both a powerful and cost-effective solution for these requirements, allowing you to benefit from a wide variety of features that extend beyond mere capturing and playout.

Open system

Use Rohde & Schwarz DVS players and disk recorders with your preferred, existing software tools. The Pronto family was designed with an open architecture on a Windows® operating system which uses NTFS Windows® file system as native storage and with support for many commonly used uncompressed and compressed file formats, allowing an easy file exchange with all leading third-party applications like editing systems, color grader or compositing tools.

Pronto4K-HFR
With Pronto4K-HFR, Rohde & Schwarz DVS presents the fastest member of its Pronto family. The high-end presentation player supports playout of uncompressed material up to 4K at 120p* RGB 10 bit or 4K /60p RGB 12 bit over four DisplayPort 1.1 interfaces. Thanks to the integrated high-performance SSD storage, Pronto 4K-HFR provides cost-efficient playout with high data rates.

Pronto4 HDMI
Pronto4 HDMI is a powerful and reliable disk recorder for post production and presentation applications worldwide. The standard configuration includes all HD and SD formats with options for 2K and 4K that extend the range of applications significantly. With its native support of all major compressed and uncompressed file formats and its built-in editing system, the Pronto4 HDMI fits wherever the workflow must adapt quickly to varying requirements.

Last-minute changes are an easy task: customers benefit from Pronto4 HDMI's flexibility, whether in post production or in high-end presentation.

The 3D/stereoscopic option with multiplexed playout via one 340 MHz HDMI port or via two separate SDI or HDMI port connects to all major stereoscopic displays and projectors.

Pronto4K
Pronto4K provides all the features and the reliability of Pronto4 HDMI – exceeding them by its SDI connectivity. Additionally, it supports all formats up to 4K at 50 Hz (via four HDMI ports or four 3 Gbit/s SDI) and Quad HD at 60 Hz in the standard configuration. The 340 MHz HDMI port with resolutions up to 4K at 24 Hz precisely matches the latest 4K displays and projectors.

3D and 4K playout
As a flexible disk recorder, Pronto4K and Pronto4 HDMI are not just the ideal solutions for trade shows or presentations – they also serve as perfect playout devices for video walls or LCD screens. Stereoscopic material can be played out via one 340 MHz HDMI 1.4a, two 165 MHz HDMI or two 3 Gbit/s SDI interfaces which also makes the Pronto family suitable for the 3D market. Moreover, Pronto4K can play out 4K material via one 340 MHz HDMI or four 165 MHz HDMI interfaces or four 3 Gbit/s SDI ports.

The latest research results have been taken into account when developing the Pronto family of disk recorders: Recent studies have shown that visual sharpness may suffer from motion blur. Increasing the spatial resolution does not always lead to better image quality. On the contrary, moving objects appear blurred when they move and become sharp as soon as they stop which provides an unnatural impression. Many times, increasing the temporal resolution, i.e. frame rate, provides better results than just increasing the spatial resolution. Therefore, Pronto4K-HFR, the fastest member of the Pronto family, combines the spatial resolution of 4K images with the

high frame rates of 60 fps and even 120 fps* as well as 3D/stereoscopic playout with 60 fps per eye at 4K resolution is supported as well. These features make Pronto4K-HFR the ideal counterpart for the latest 4K projectors, video walls and displays – a real must for all high-end presentations.
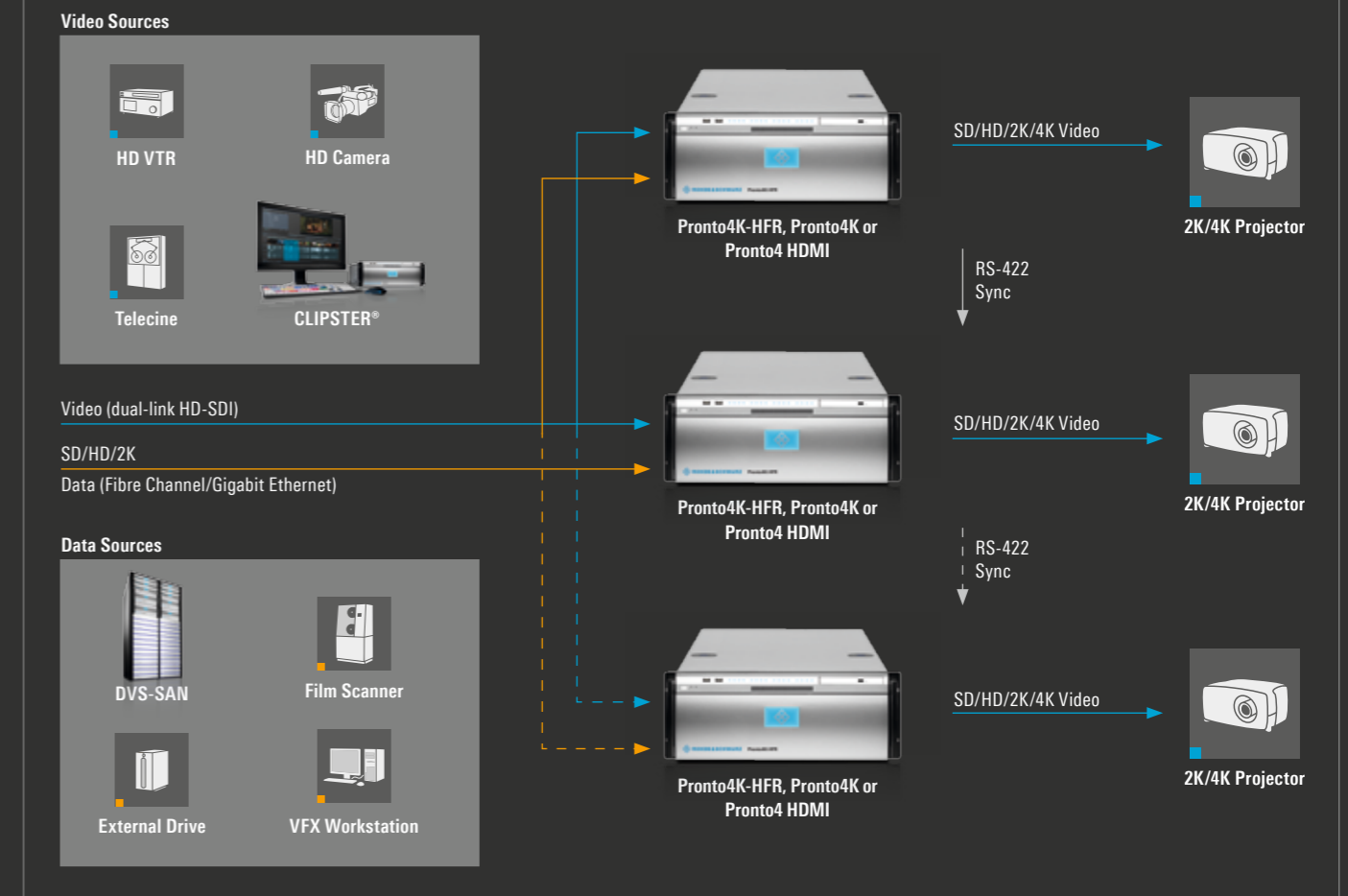
All major file formats
Are you using a wide variety of file formats in your workflow and want to apply them adequately? The Pronto family can handle all of them, regardless of whether you use uncompressed formats or even one of the more than 100 graphic formats the Pronto family supports. Most formats can be dragged into the timeline and played out without an extra render pass for realtime capture.

Multi-screen presentations
The Pronto family can be put to an incredible range of uses thanks to freely selectable options which build on the powerful base version to suit customer requirements. The synchronization of multiple Pronto systems disk recorders enables the realization of demanding multi-screen presentations.

Multi-device presentation

* Available Q4/2014 for Pronto4K-HFR

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Key features

Key features

Pronto4K-HFR
- R/T playout of 4K RGB 12 bit material at 60 fps via four DisplayPort 1.1a interfaces
- R/T playout of 4K RGB 10 bit material at 120 fps via four DisplayPort 1.1a interfaces*
- R/T playout of 4K RGB 12 bit material at 60 fps via four SDI ports*

Pronto4K and Pronto4 HDMI
- R/T playout of 4K material via one 340 MHz HDMI port**
- R/T playout of 4K material via four 165 MHz HDMI ports**
- R/T playout of 4K material via four SDI ports (Pronto4K only)

Features of Pronto4K-HFR, Pronto4K and Pronto4 HDMI
- Capture* and playout of digital video and audio
- Playout of 3D/stereoscopic material*
- R/T scaler for format adjustment during play***/*
- VTR emulation with full RS-422 initiator and target mode
- Multi-device mode for simultaneous and frame-accurate control of multiple Pronto4 systems**
- Support of digital audio (AES/EBU), embedded audio and ancillary data, including timecode and keycode
- Video and audio is stored in NTFS Windows® file system in ordinary files
- Easy data management with Spycer®

Operation modes
- Playout
- Manual capture*
- Batch capture*
- Editing with timeline
- Autoconforming with rendering
- VTR emulation*
- Remote control, target and initiator modes

Technical specifications

Uncompressed file formats
- DPX 10/12/16, Cineon®, BMP, TIFF 8/16, YUV 8/16, TGA, QuickTime®, WAV, AIFF

Compressed file formats
- MPEG-2, DVCPRO®, AVC-Intra 50/100***

Control
- RS-422 in and out

Networking
- 1000 Base-T (Gigabit Ethernet)

Configurations for Pronto4K-HFR
- 1 x 4U from 3800 to 7680 GB local SSD storage RAID-5

Configurations for Pronto4 and Pronto4K
- 1 x 4U for use with SAN, 0 GB local storage
- 1 x 4U – from 4800 to 9600 GB local SAS storage, RAID-5

Technical specifications

Options	Pronto4K-HFR	Pronto4K	Pronto4 HDMI
4K/2K, R/T playout	std.	std.	•
2K R/T and HSDL	std.	std.	•
R/T scaler for format adjustment	•*	•	•
3D/stereo playout, up to 2K 60 Hz per eye	•*	•	•
3D/stereo playout, up to 4K 60 Hz per eye	•*	–	–
Multi-device mode (synchronization of multiple Pronto4)	•	•	•
Customized video rasters	•	•	•
MPEG2 + DVCPRO® software encoding	•	•	•
AVC-Intra 50/100 software encoding	•	•	•
Audio AES/EBU 16 channel	•	•	•
Video I/O			
3G SDI Input (multi-rate 270 Mbit/s, 1.5 / 3 Gbit/s)	4*	2	2
3G SDI Output (multi-rate 270 Mbit/s, 1.5 / 3 Gbit/s)	4*	4	2
Display Port 1.1 output	4	–	–
HDMI Output	–	–	4
Audio/LTC			
Embedded, 16 channel	•*	•	•
AES/EBU 8 channel/ 16 channel optional	•/•	•/•	•/•
LTC	•	•	•

Formats

SD, up to RGB 12 Bit Material	Pronto4K-HFR	Pronto4K	Pronto4 HDMI
525i/29.97 720×486	•	•	•
625i/25 720×576	•	•	•
HD, up to RGB 12 Bit Material			
1280×720p up to 60 fps	•	•	•
1920×1080i/psF up to 30 fps	•	•	•
1920×1080p up to 60 fps	•	•	•
2K, up to RGB 12 Bit Material			
2048×1080p/psF up to 60 fps	•	•	•
2048×1556p up to 25 fps	•	•	•
4K			
3840×2160p up to 30 fps, RGB 10 bit	•	•	•
3840×2160p up to 60 fps, YUV 8 bit	•	•	•
3840×2400p up to 30 fps, RGB 10 bit	•	•	•
4096×2160p up to 30 fps, RGB 10 bit	•	•	•
4096×2160p up to 50 fps, YUV 8 bit	•	•	•
4096×2400p up to 30 fps, RGB 10 bit	•	•	•
4K HFR			
3840×2160p up to 60 fps, RGB 12 bit	•	–	–
3840×2160p up to 120 fps, RGB 10 bit	•*	–	–
4096×2160p up to 60 fps, RGB 12 bit	•	–	–
4096×2160p up to 120 fps, RGB 10 bit	•*	–	–

* Available Q4/2014 for Pronto4K-HFR
** Optional for Pronto4 HDMI
*** Optional

std. = included in standard configuration

Service

Offering superior service for our entire product portfolio is integral to the Rohde & Schwarz DVS philosophy. Our support and service team is comprised of engineers who consider first-class, professional customer service their first priority.

We offer optimum support and service, with service packages tailored to clients' specific needs. Our service team can assist onsite or perform services quickly and reliably via remote control. Rohde & Schwarz DVS also has a service website, complete with detailed technical documentation to provide current updates, upgrades, and relevant information.

Our services reflect the quality of our products: Our clients benefit from individualized support and reliable service.

Our service team is available to you at service.dvs@rohde-schwarz.com

Training

Learn in-depth about your product from Rohde & Schwarz DVS. With our comprehensive training program, we offer the opportunity to become completely at home with your equipment. We're also happy to support you with the implementation and setup of your system.

Our authorized Education Center offers individual training programs onsite and is ready to assist you with relevant information on each workflow. We'd also be happy to welcome you at the Rohde & Schwarz DVS headquarters for a hands-on training session with your new equipment. You will receive concise training courses for various product updates, allowing you to immediately familiarize yourself with new developments.

Our professional training courses provide you with the detailed knowledge to make the most of your equipment.

Ask about our training packages at training.dvs@rohde-schwarz.com

About Rohde & Schwarz DVS

For more than 25 years, Rohde & Schwarz DVS GmbH has been very successful in the professional film, video post production and broadcast markets. The specially developed and manufactured hardware and software are applied to the production of popular TV series, Hollywood blockbusters and in Digital Cinema. R&S®CLIPSTER was the first system in the world to make realtime 4K processing possible. The future-proof ingest and production server R&S®VENICE offers a flexible solution for modern, file-based workflows in broadcast environments.