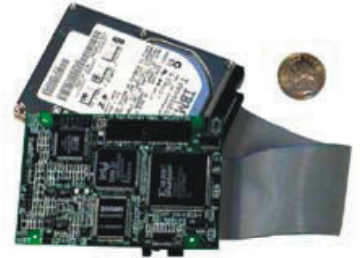


Digital Video Recorder System (TPR)

TPR is an ultra-compact digital video recorder that provides broadcast quality video and audio recording and playback. The TPR single circuit board design is a high quality video recorder/player designed for standalone and portable operation and it can provide recording of up to 50 hours of video data. Recording media can be either hard drive or Flash disk. Weighing approximately 200 grams, the system lends itself to UAV applications and remote deployment. TPR includes record/stop trigger circuits that can be controlled from UAV on-board computer or switched on/off from the ground. It is possible to design an HDTV version of TPR. The important step is to provide a complete protected module that can be used on a UAV platform, brought back to the ground and used to display the data in the same quality as produced by the sensor. This would allow immediate image enhancement via TPS Image Enhancement system and analysis. The only other source of the data from UAV is a data stream that is being transmitted via some channel, invariably narrower than a full broadcast quality video stream.



When recording, TPR converts an analog NTSC or PAL video signal to a component digital format, compresses video directly to an IDE hard disk. Control of the board is available through a serial port RS-232 interface.

This port may optionally be configured as RS-422/485 for direct connection to video editing equipment standardized on Sony protocol. When playing back, TPR retrieves the compressed video data from an IDE hard disk, decodes

the JPEG data into digital component video, and converts the digital video to an analog NTSC or PAL video signal. Composite video and Y/C connectors, decoder, and encoder are included on the TPR. Pixel resolution is full bandwidth CCIR-601, which is 720 x 486 in NTSC and 720 x 576 in PAL. Sampling is maintained at 4:2:2.



Complete design system can be put together into 3" x 4" x 2" box (TPR-5) hardened for the field use (internal shock protection for UAV use). Instant controls of TPR-6 control module allow play/record as well as fast review at 30x speed (forward/backward) on a built-in 1.8" LCD screen. Alternative configuration designs are available for the analyst's station.

- ▶ Fully integrated Digital Video Recorder with analog I/O
- ▶ Compression ratios from 4:1 to 20:1
- ▶ Single hard disk contains from 8 to 40 hours of video/audio
- ▶ Directly controlled by any computer with RS-232 port
- ▶ Low power consumption (<5W) "go anywhere" design
- ▶ Highest quality broadcast video – full 486 lines of 720 pixels
- ▶ Lightweight design for inclusion into UAV or other vehicles
- ▶ Analysis station with screen and advanced controls can be configured for field or station use



Excellent for:
Reconnaissance – Field Exercises – Remote Video Capture – Evidence

For further information contact:

Joe Silver, Deputy Director, UAV Solutions • jsilver@brandes-asscoc.com
 Brandes Associates Inc. • 1417 Crestline Dr. • Santa Barbara, CA. 93105
 817-562-1655 • cell: 817-501-5003

Digital Video Recorder Systems

Model TPRDM-10:

- ▶ The rack-mounted analysis station has its own permanent monitor: either a desktop model or a rack-mounted Sony 10" display
- ▶ The TPR analysis system has a controller interface similar to professional video equipment, including a jog/shuttle knob and all customary control buttons
- ▶ Sony high resolution 9" monitor with 2 video in/out ports



Model TPR-25:

- ▶ Stand-alone removable disk tray system
- ▶ Full size 3.5" IDE drive, up to 120Gb
- ▶ Analog video/audio in/out
- ▶ Data on the disk accessible directly with Quicktime
- ▶ Frame-by-frame operation from front panel
- ▶ RS-232 port with complete Sony protocol Two TPR-25 side-by-side mount for U2 19" rack panel



Model TPR-5:

- ▶ Super small digital video/audio recorder, 3" x 4" x 2"
- ▶ Utilizes 2.5" laptop drives, up to 120Gb
- ▶ Hardened for field use
- ▶ Low power consumption, <5W @ 5V
- ▶ Can be used in UAV, vehicles or unattended
- ▶ Includes triggers (contact closures) to control recording
- ▶ Mates directly to TPR-6



Model TPR-6:

- ▶ Super small control system with 2" high contrast LCD
- ▶ Directly mates to TPR-5 in the field
- ▶ Outputs are: Video IN/OUT, Audio IN/OUT
- ▶ RS-232 port with complete Sony protocol
- ▶ Direct frame-by-frame control from the front panel
- ▶ 3" x 3" x 5" hardened solid aluminum casing
- ▶ Provides direct control over TPR-5, including drive formatting, clip deletion, loop recording



Model TPRAS-10:

- ▶ The field analysis station is based on an IBM laptop
- ▶ Includes a separate re-chargeable battery providing 12+ hours of continuous operation, fast recharge, 2-4 hours
- ▶ The laptop, battery and connection electronics are housed in a Pelican 1490 case
- ▶ The TPR-5 field module docks in this case
- ▶ Software application gives operator full control of the TPR in the same manner as standard Sony professional video equipment: noiseless frame-by-frame operation, backward/forward viewing and jog/shuttle control
- ▶ Full video deck control and video by-pass

