

New!

Model RTR 2726A

200 MS/sec RF/IF Rugged Portable Recorder



Features

- Designed to operate under conditions of shock and vibration
- Portable system measuring 16.0" W x 6.9" D x 13.0" H
- Lightweight, just less than 30 pounds
- Shock- and vibration-resistant SSDs perform well in vehicles, ships and aircraft
- 200 MHz 16-bit A/Ds
- 800 MHz 16-bit D/As
- 80 MHz record and playback signal bandwidths
- Recording and playback of IF signals up to 700 MHz
- Real-time sustained recording rates up to 3.2 GB/sec
- Windows® 7 Professional workstation with high performance Intel® Core™ i7 processor
- Up to 15.3 terabytes of SSD storage to NTFS RAID solid state disk array
- SystemFlow® GUI with Signal Viewer analysis tool
- File headers include time stamping and recording parameters
- Optional GPS time and position stamping
- Optional 18–36 VDC power supply

Contact the factory for options, for number and type of analog channels, recording rates, and disk capacity.

General Information

The Talon® RTR 2726A is a turnkey, multiband recording and playback system that allows the user to record and reproduce high-bandwidth signals with a lightweight, portable and rugged package. The RTR 2726A provides sustained recording rates of up to 3.2 GB/sec in a four-channel system and is ideal for the user who requires both portability and solid performance in a compact recording system.

The RTR 2726A is supplied in a small footprint portable package measuring only 16.0" W x 6.9" D x 13.0" H and weighing just less than 30 pounds. With measurements similar to a small briefcase, this portable workstation includes an Intel Core i7 processor a high-resolution 17" LCD monitor, and up to 15.3 TB of SSD storage.

At the heart of the RTR 2726A are Pentek Cobalt® Series Virtex-6 software radio boards featuring A/D and D/A converters, DDCs (Digital Downconverters), DUCs (Digital Upconverters), and complementary FPGA IP cores. This architecture allows the system engineer to take full advantage of the latest technology in a turnkey system.

Optional GPS time and position stamping allows the user to record this critical signal information.

SystemFlow Software

Included in this system is the Pentek SystemFlow recording software. SystemFlow features a Windows-based GUI (Graphical User Interface) that provides a simple means to configure and control the system. It also includes a C-callable API that allows users to easily integrate the Talon recorder into a larger system.

The GUI provides a very simple interface for system setup. This includes pull-down selections for a handful of parameters, a checkbox to enable/disable the DDC and a data-entry field for the sample rate. Once set up, the GUI provides the ability to save profiles that can be reloaded at the click of a button.

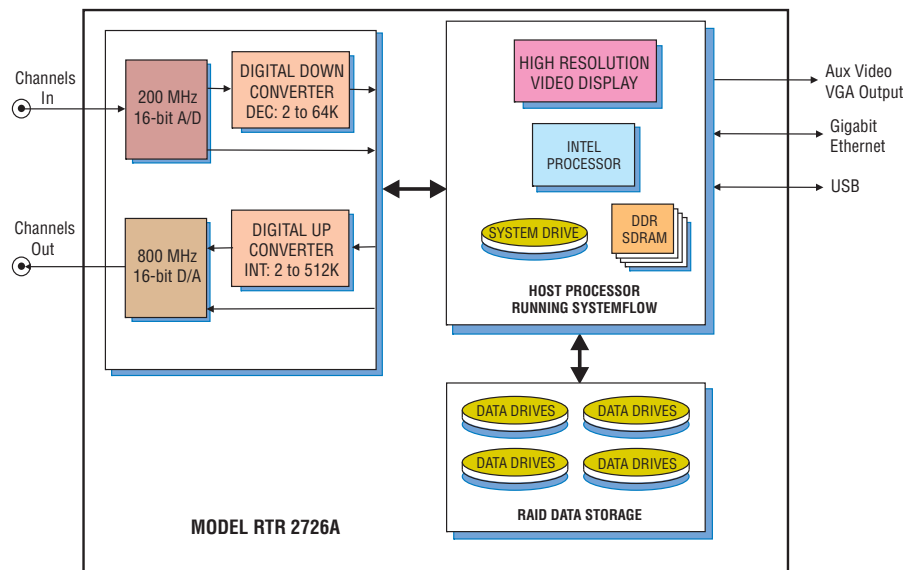
SystemFlow also includes signal viewing and analysis tools, that allow the user to monitor the signal prior to, during, and after a recording session. These tools include a virtual oscilloscope and spectrum analyzer.

Built on a Windows 7 Professional workstation, the RTR 2726A allows the user to install post-processing and analysis tools to operate on the recorded data. The RTR 2726A records data to the native NTFS file system, providing immediate access to the recorded data.

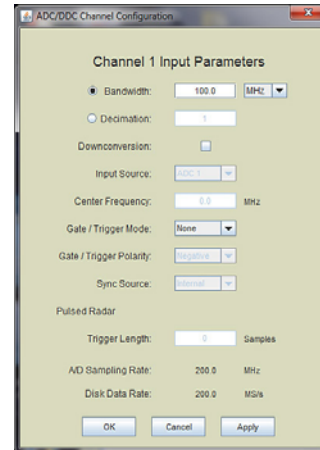
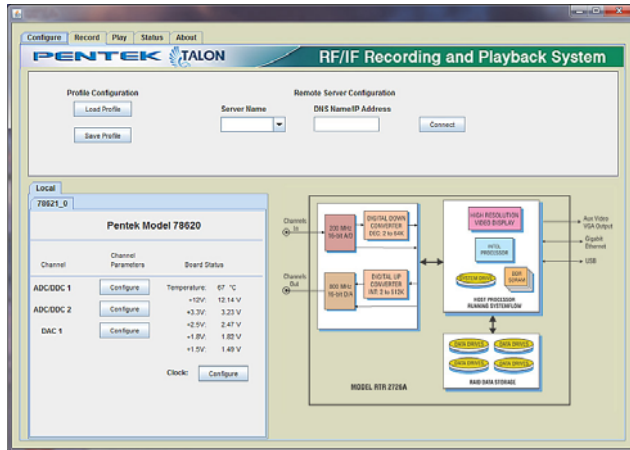
Data can be off-loaded via gigabit Ethernet, USB 2.0 and USB 3.0 ports. Additionally, data can be copied to optical disk, using the 8X double layer DVD±R/RW drive.

Rugged Chassis with SSD Storage

The RTR 2726A is configured with hot-swappable SSDs, front panel USB ports, and I/O connectors on the side panel. It is built in an extremely rugged steel and aluminum chassis and is tested for shock and vibration. The SSDs provide storage capacities of up to 15.3 TB. Drives can be easily removed or exchanged during or after a mission to retrieve recorded data. Multiple RAID levels, including 0, 1, 5, and 6, provide a choice for the required level of redundancy. ▶



► SystemView Graphical User Interface

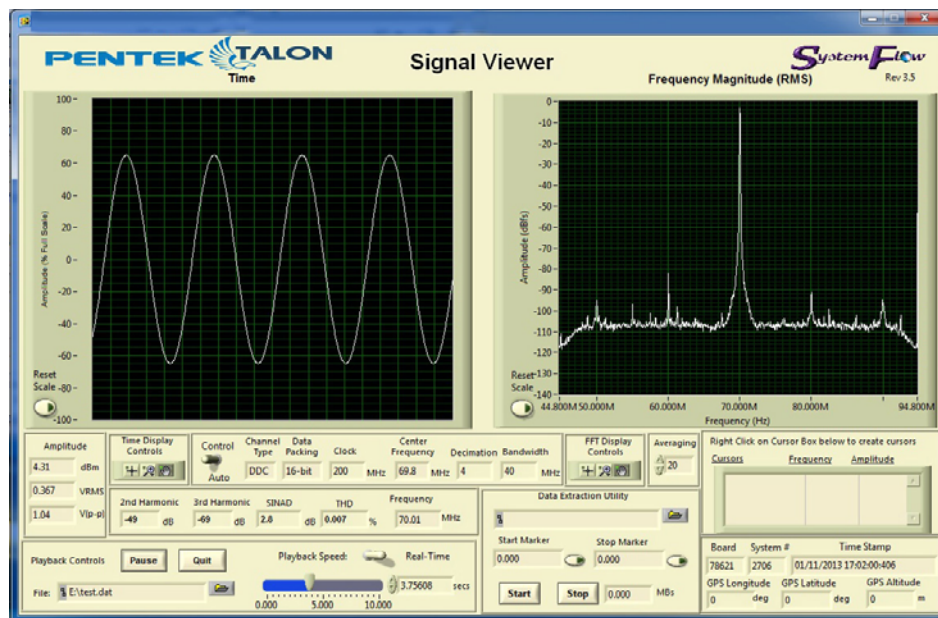


SystemFlow Recorder Interface

The RTR 2726A GUI provides the user with a control interface for the recording system. It includes Configuration, Record, Playback and Status screens, each with intuitive controls and indicators. The user can easily move between screens to set configuration parameters, control and monitor a recording, play back a recorded signal and monitor board temperature and voltage levels. The signal viewer, integrated into the recording GUI, allows the user to monitor real-time signals or recorded signals on disk.

SystemFlow Hardware Configuration Interface

The RTR 2726A's Configure screens provide a simple and intuitive means for setting up the system parameters. The DDC configuration screen shown here, allows user entries for input source, center frequency, decimation, as well as gate and trigger information. All parameters contain limit-checking and integrated help to provide an easier-to-use out-of-the-box experience.



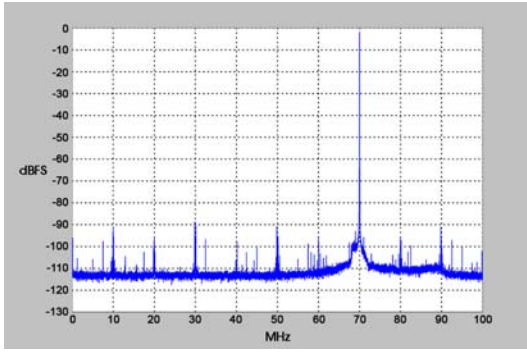
SystemFlow Signal Viewer

The SystemFlow Signal Viewer includes a virtual oscilloscope and spectrum analyzer for signal monitoring in both the time and frequency domains. It is extremely useful for previewing live inputs prior to recording, and for monitoring signals as they are being recorded to help ensure successful recording sessions. The viewer can also be used to inspect and analyze the recorded files after the recording is complete.

Advanced signal analysis capabilities include automatic calculators for signal amplitude and frequency, second and third harmonic components, THD (total harmonic distortion) and SINAD (signal to noise and distortion). With time and frequency zoom, panning modes and dual annotated cursors to mark and measure points of interest, the SystemFlow Signal Viewer can often eliminate the need for a separate oscilloscope or spectrum analyzer in the field. ►

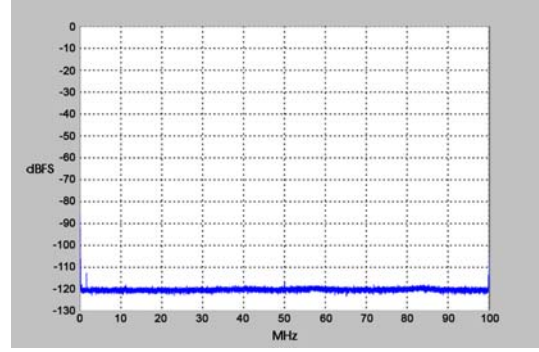
► A/D Performance

Spurious Free Dynamic Range



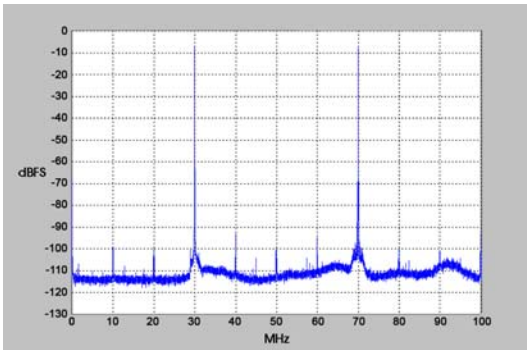
$f_{in} = 70 \text{ MHz}, f_s = 200 \text{ MHz}, \text{Internal Clock}$

Spurious Pick-up



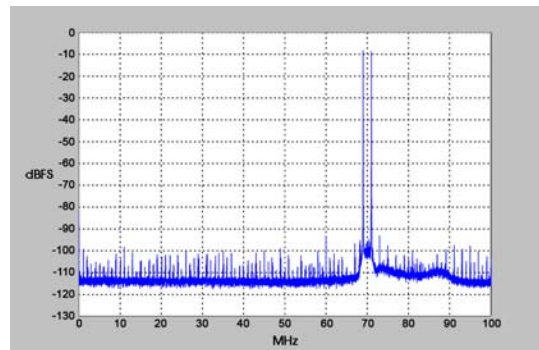
$f_s = 200 \text{ MHz}, \text{Internal Clock}$

Two-Tone SFDR



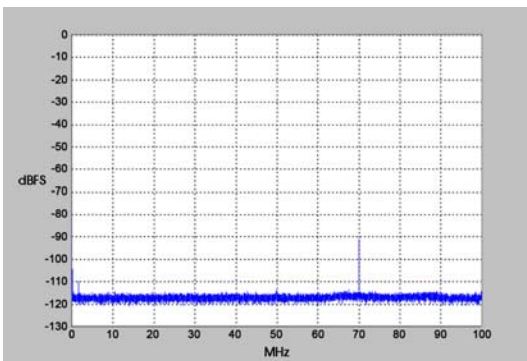
$f_1 = 30 \text{ MHz}, f_2 = 70 \text{ MHz}, f_s = 200 \text{ MHz}$

Two-Tone SFDR



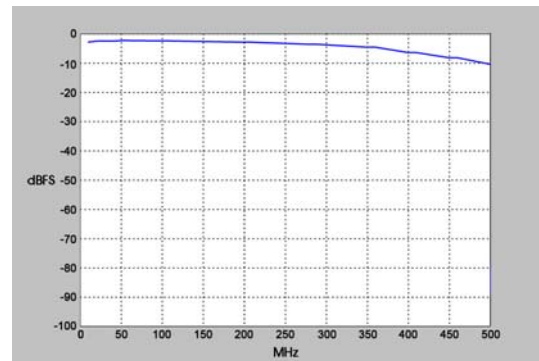
$f_1 = 69 \text{ MHz}, f_2 = 71 \text{ MHz}, f_s = 200 \text{ MHz}$

Adjacent Channel Crosstalk



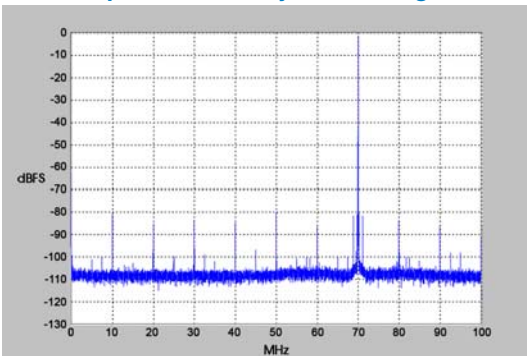
$f_{in \text{ Ch2}} = 70 \text{ MHz}, f_s = 200 \text{ MHz}, \text{Ch 1 shown}$

Input Frequency Response



$f_s = 200 \text{ MHz}, \text{Internal Clock}$

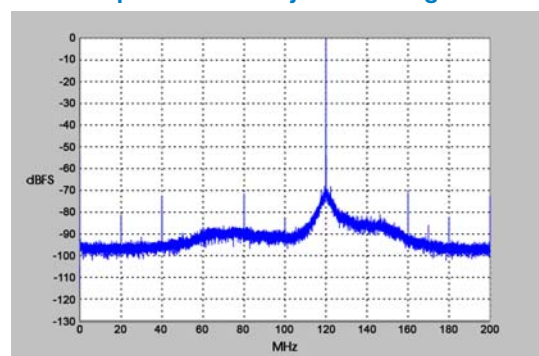
Spurious Free Dynamic Range



$f_{out} = 70 \text{ MHz}, f_s = 200 \text{ MHz}, \text{Internal Clock}$

► D/A Performance

Spurious Free Dynamic Range



$f_{out} = 120 \text{ MHz}, f_s = 400 \text{ MHz}, \text{External Clock}$

Specifications

PC Workstation (standard configuration)

Operating System: 64-bit Windows 7 Professional
Processor: Intel Core i7 processor
Clock Speed: 3.0 GHz or higher
Operating System Drive: 128 GB SSD
SDRAM: 8 GB
Monitor: Built-in 17.3" high-resolution LCD,
 1920 x 1080 pixels, 16:9 aspect ratio, anti-glare surface
 Brightness: 300 cd/m²; Contrast ratio: 400:1 typical
RAID
Total Storage: 1.9, 3.8, 7.6 or 15.3 TB
Supported RAID Levels: 0, 1, 5 and 6
Drive Bays: Hot-swap, removable, side panel
USB 2.0 Ports: Four on left side, two on front panel
USB 3.0 Ports: Two on left side
1 Gb Ethernet Ports: Two on left side
Aux Video Output: 15-pin VGA on left side

Analog Signal Inputs

Connectors 1, 2, 3, or 4 transformer-coupled, female SSMC
Transformer Type: Coil Craft WBC4-6TLB
Full Scale Input: +8 dBm into 50 ohms
3 dB Passband: 300 kHz to 700 MHz

A/D Converters

Type: Texas Instruments ADS5485
Sampling Rate (f_s): 10 MHz to 200 MHz
Resolution: 16 bits
A/D Record Bandwidth: $f_s/2$ = Nyquist bandwidth
Anti-Aliasing Filters: External, user-supplied

Digital Downconverter

Type: Virtex-6 FPGA, Pentek DDC IP Core
Decimation (D): 2 to 65,536
IF Center Frequency Tuning: DC to f_s , 32 bits
DDC Usable Bandwidth: $0.4 \cdot f_s / D$

Analog Signal Outputs

Connectors: 1 or 2, transformer-coupled, female SSMC
Full Scale Output: +4 dBm into 50 ohms
3 dB Passband: 300 kHz to 700 MHz

Digital Upconverter, Interpolator and D/As

D/A Resolution: 16 bits
Output Signal: Analog, real or quadrature
Type: TI DAC5688 and Pentek-installed IP core interpolator
IP Core Interpolation: 2 to 65,536
DAC5688 Interpolation: 2, 4 or 8
Overall Interpolation: 2 to 524,288
Input Data Rate to DAC5688: 250 MS/sec max.
Output Sampling Rate: 800 MHz max
Output IF: DC to 400 MHz
Bandwidth Range: Matches recording bandwidths
Clock Sources: Selectable from onboard programmable VCXO, external or LVDS clocks

External Clocks

Type: Female SSMC connector, sine wave, 0 to +10 dBm, AC-coupled, 50 ohms, 10 to 200 MHz

Optional DC Power supply

Voltage: 18 to 36 VDC
Input Current: 42 to 26 A (39 A at 24 VDC)
Inrush Current: 100 A at 24 VDC
Temperature Range: Oper.: 0° to 50° C, Store: -0° to 80° C
Efficiency: >80% typical at 24 V full load
Power Good Signal: On delay 100 to 500 msec
OverPower Protection: 110% to 160%
Remote Control: On/Off
Safety: Meets UL, TUV, CB specifications

Physical and Environmental

Size: 16.0" W x 6.9" D x 13.0" H
Weight: 30 lb max.
Operating Temp: 0° to +50° C
Storage Temp: -40° to +85° C
Relative Humidity: 5 to 95%, non-condensing
Operating Shock: 30 g max. (11 msec, half-sine wave)
Operating Vibration: 10 to 20 Hz: 0.02 inch peak,
 20 to 500 Hz: 1.4 g peak acceleration
Non-operating Vibration: 5 to 500 Hz: 2.06 g RMS
Power Requirements: 100 to 240 VAC, 50 to 60 Hz, 500 W max.

Model RTR 2726A Ordering Information and Options

Channel Configurations

Option -201	1-channel recording
Option -202	2-channel recording
Option -203	3-channel recording
Option -204	4-channel recording
Option -208	8-channel recording
Option -221	1-channel playback
Option -222	2-channel playback
Option -224	4-Channel playback
Option -228	8-Channel playback

Storage Options

Option -405	1.9 TB SSD storage capacity	2.0 GB/sec
Option -410	3.8 TB SSD storage capacity	3.2 GB/sec
Option -415	7.6 TB SSD storage capacity	3.2 GB/sec
Option -420	15.3 TB SSD storage capacity	3.2 GB/sec

Max. Data Rate

General Options (append to all options)

Option -261	GPS time & position stamping
Option -264	IRIG-B time stamping
Option -681	18 to 36 VDC Power Supply

Contact Pentek for compatible Option combinations

Storage and Channel-count Options may change, contact Pentek for the latest information

Specifications subject to change without notice