

New!

Model RTR 2726

Four-Channel RF/IF, 200 MS/sec Rugged Portable Recorder



Features

- Designed to operate under conditions of shock and vibration
- Portable system measuring 16.9" W x 9.5" D x 13.4" H
- Lightweight: approximately 30 pounds
- Rugged aluminum alloy chassis
- Shock- and vibration-resistant SSDs perform well in vehicles, ships and aircraft
- Recording & playback of IF signals up to 700 MHz
- Signal bandwidths to 80 MHz
- 200 MHz 16-bit A/Ds
- 800 MHz 16-bit D/As
- SFDR > 80 dBFS
- Real-time sustained recording rates up to 1600 MB/sec
- Up to of 3.8 TB storage with hot-swappable SSD drives
- NTFS file format
- SystemFlow® GUI with Signal Viewer analysis tool
- File headers include time stamping and recording parameters
- Ideal for communications, radar, wireless, SIGINT, telecom and satcom
- Optional GPS time and position stamping
- Complete high-performance Windows® workstation

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

General Information

The Talon™ RTR 2726 is a turnkey, multi-band recording and playback system that allows the user to record and reproduce high-bandwidth signals with a lightweight, portable and rugged package. The RTR 2726 provides sustained recording rates of up to 1600 MB/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 2726 is supplied in a small footprint portable package measuring only 16.9" W x 9.5" D x 13.4" H and weighing just 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 a high-performance SATA RAID controller.

At the heart of the RTR 2726 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.

Custom configurations can be stored as profiles and later loaded when needed,

allowing the user to select preconfigured settings with a single click.

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 a virtual spectrum analyzer.

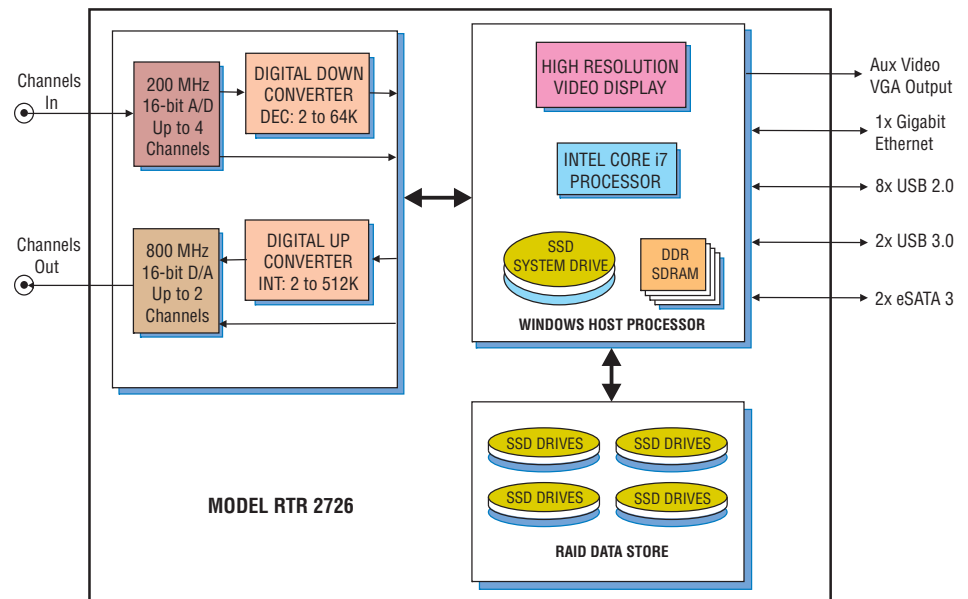
Built on a Windows 7 Professional workstation, the RTR 2726 allows the user to install post processing and analysis tools to operate on the recorded data. The RTR 2726 records data to the native NTFS file system, providing immediate access to the recorded data.

Data can be off-loaded through two 1 Gb Ethernet ports, eight USB 2.0 ports or two eSATA ports. Additionally, data can be copied to optical disk, using the 8X double layer DVD±R/RW drive.

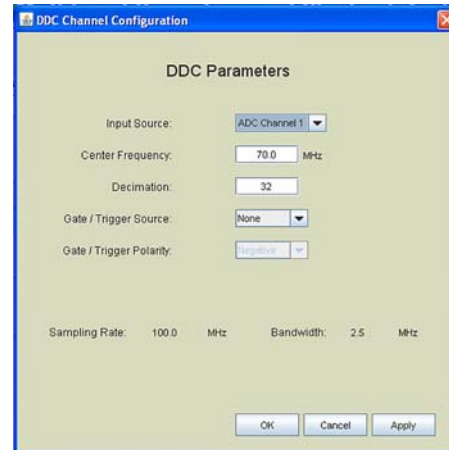
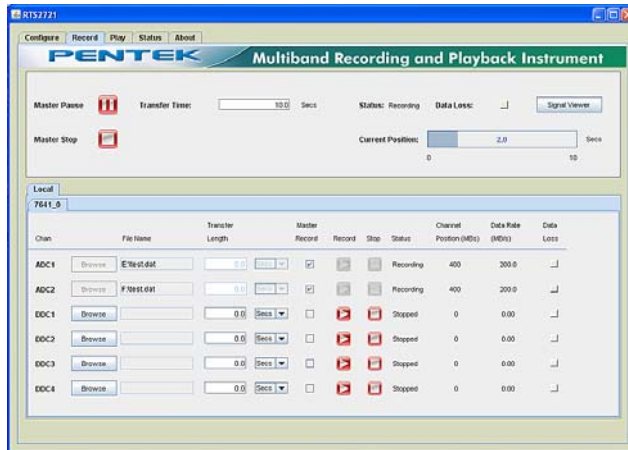
Rugged & Flexible Architecture

The RTR 2726 is configured in a portable, lightweight chassis with eight hot-swap SSDs, front panel USB ports and I/O connections on the side panel. It is built on an extremely rugged, 100% aluminum alloy unit, reinforced with shock absorbing rubber corners and an impact-resistant protective glass. Using vibration and shock resistant SSDs, the RTR 2726 is designed to reliably operate as a portable field instrument.

The eight hot-swappable SSDs provide storage capacities of up to 3.8 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

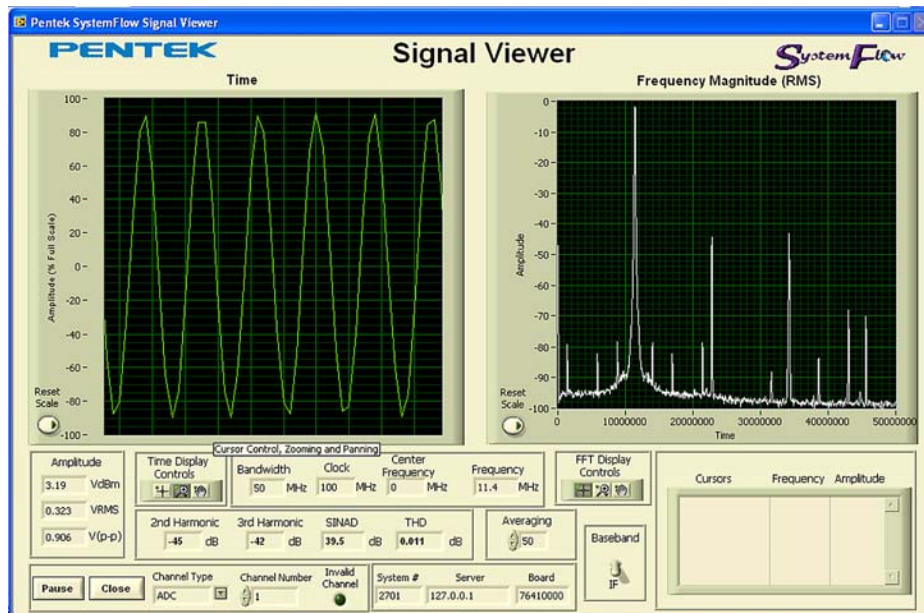


SystemFlow Recorder Interface

The RTR 2726 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 2726's configuration screens provide a simple and intuitive means for setting up the system parameters. The DDC configuration screen shown here, provides 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.



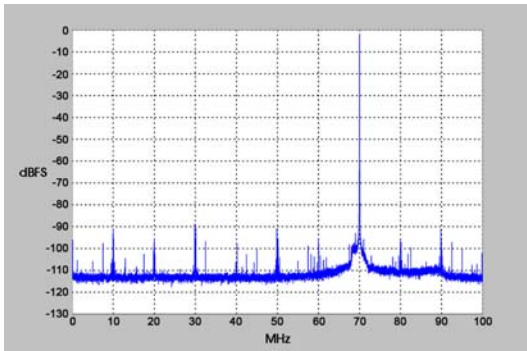
SystemFlow Signal Viewer

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. ►

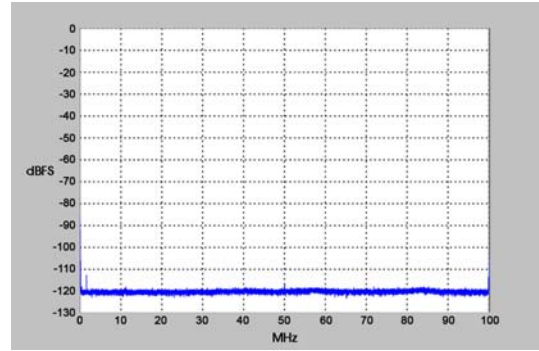
► A/D Performance

Spurious Free Dynamic Range



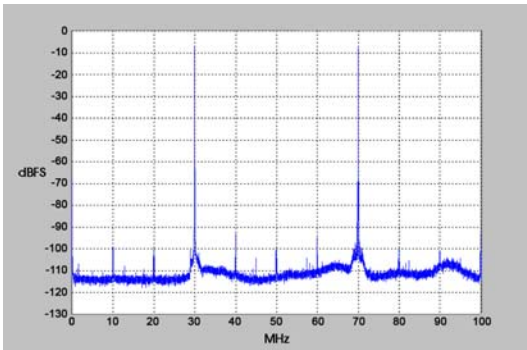
$f_{in} = 70 \text{ MHz}, f_s = 200 \text{ MHz}, \text{Internal Clock}$

Spurious Pick-up



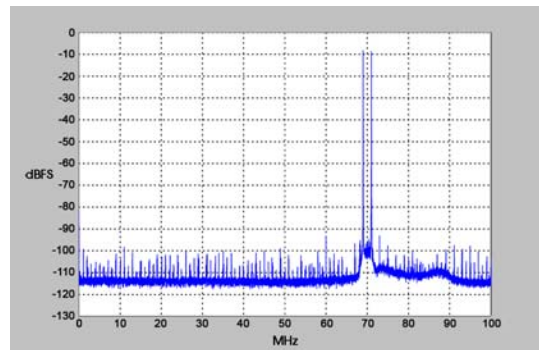
$f_s = 200 \text{ MHz}, \text{Internal Clock}$

Two-Tone SFDR



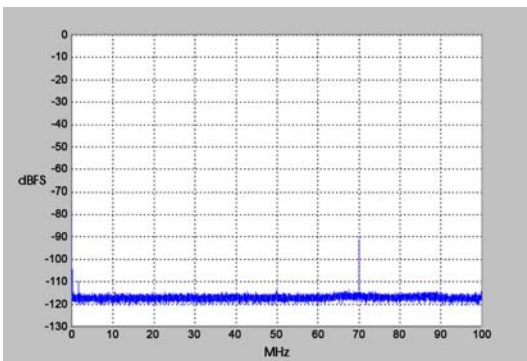
$f_1 = 30 \text{ MHz}, f_2 = 70 \text{ MHz}, f_s = 200 \text{ MHz}$

Two-Tone SFDR



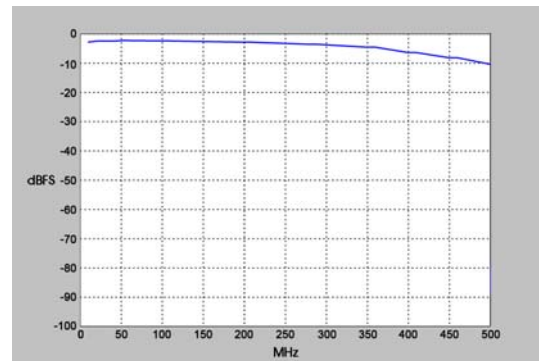
$f_1 = 69 \text{ MHz}, f_2 = 71 \text{ MHz}, f_s = 200 \text{ MHz}$

Adjacent Channel Crosstalk



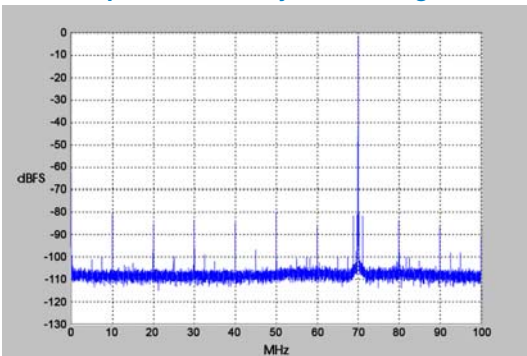
$f_{in \text{ Ch2}} = 70 \text{ MHz}, f_s = 200 \text{ MHz}, \text{Ch 1 shown}$

Input Frequency Response



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

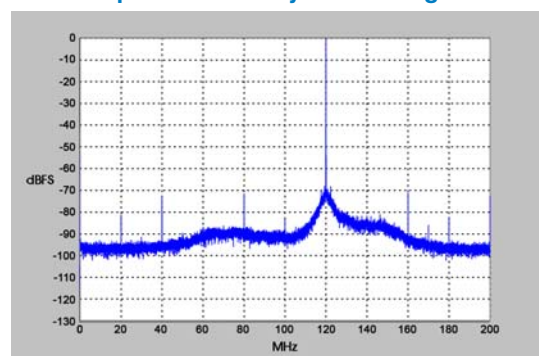
Spurious Free Dynamic Range



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

► 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: Windows 7 Professional

Processor: Intel Core i7 processor

Clock Speed: 2.0 GHz or higher

Operating System Drive: 128 GB SSD

SDRAM: 6 GB

Monitor: Built-in 17" high-resolution LCD
1440 x 900 pixels, 200 nits

RAID

Total Storage: 0.96, 1.9 or 3.8 TB

Number of Drives: 8

Supported RAID Levels: 0, 1, 5 and 6

Drive Bays: 8, hot-swap, removable, rear panel

USB 2.0 Ports: Eight (8) left side, two (2) front panel

USB 3.0 Ports: Two (2) left side

1 Gb Ethernet Port: One (1) left side

eSATA 3 Ports: Two (2) left side

Aux Video Output: 15-pin VGA left side

Analog Recording Inputs

Analog Signal Inputs

Quantity: 1, 2, 3, or 4

Input Type: Transformer-coupled, female SSMC connectors

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 Recording Rate/Channel: $2f_s$ bytes/sec,
(e.g., 400 MB/sec per channel at $f_s = 200$ MHz)

Digital Downconverter

Type: Virtex-6 installed DDC IP Core

Decimation (D): 2 to 65,536 in two stages of 2 to 256

DDC Bandwidth: $0.8 f_s/D$

Bandwidth Range: 2.5 kHz to 80 MHz at $f_s = 200$ MHz

DDC Recording Rate/Channel: $2f_s/D$ bytes/sec

Analog Playback Outputs

Analog Signal Outputs

Quantity: 1 or 2

Output Type: Transformer-coupled, female SSMC connectors

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 in two stages of 2 to 256

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

Physical and Environmental

Dimensions: 16.9" W x 9.5" D x 13.4" H

Weight: 30 lb, approximately

Power: 90 to 265 VAC, 50 - 60 Hz

Operating Temp: 0° to +50° C

Storage Temp: -40° to +85° C

Relative Humidity: 5 to 95%, non-condensing

Operating Shock: 15 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

Power Requirements: 100 to 240 VAC, 50 to 60 Hz,
500 W max.

Model RTR 2726 Ordering Information and Options

Channel Configurations

Option 201, 221	1-Channel record 1-Channel playback
Option 202, 222	2-Channel record 2-Channel playback
Option 203, 221	3-Channel record 1-Channel playback
Option 204	4-Channel record only

Storage Options

Option 241	960 GB SSD storage capacity; eight 120 GB hot-swappable SSDs
Option 242	1.9 TB SSD storage capacity; eight 240 GB hot-swappable SSDs
Option 244	3.8 TB SSD storage capacity; eight 480 GB hot-swappable SSDs

General Options (append to all options)

Option 261	GPS time & position stamping
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Contact Pentek for other configurations

Specifications subject to change without notice