



Features

- Designed to operate under conditions of shock and vibration
- Sample rates up to 3.6 GHz in single-channel mode
- Sample rates up to 1.8 GHz in dual-channel mode
- Capable of recording RF/IF frequencies to 1.75 GHz in single-channel mode
- Capable of recording RF/IF frequencies to 2.8 GHz in dual-channel mode
- 12-bit A/D, with 16- and 8-bit packing modes
- Real-time aggregate recording rates of up to 4.8 GB/sec
- 4U 19-inch rugged rackmount PC server chassis
- Windows® 7 Professional workstation with high performance Intel® Core™ i7 processor
- Up to 46 terabytes of SSD storage to NTFS RAID solid state disk array
- RAID levels of 0, 1, 5, 6, 10 and 50
- N+1 redundant power supply
- SystemFlow® GUI with signal viewer analysis tool
- C-callable API for integration of recorder into application
- File headers include time stamping and recording parameters
- Optional GPS time and position stamping

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

General Information

The Talon® RTR 2749 is a turnkey system, used for recording high-bandwidth signals. The RTR 2749 uses 12-bit, 3.6 GHz A/D converters. It can be configured as a one- or two-channel system and can record sampled data, packed as 8-bit- or 16-bit-wide consecutive samples (12-bit digitized samples residing in the 12 MSBs of the 16-bit word). A high-speed RAID array provides a maximum streaming recording rate to disk of 4.8 GB/sec.

The RTR 2749 uses Pentek's high-powered Virtex-7-based Onyx® boards that provide the data streaming engine for the high-speed A/D converters. Channel and packing modes as well as gate and trigger settings are among the GUI-selectable system parameters, providing complete control over this ultra wideband recording system.

Optional GPS time and position stamping allows the user to capture this critical information in the header of each data file.

SystemFlow Software

The RTR 2749 includes the 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 2749 allows the user to install post-processing and analysis tools to operate on the recorded data. The RTR 2749 records data to the native NTFS file system that provides immediate access to the recorded data.

Data can be off-loaded via two gigabit Ethernet ports, six 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.

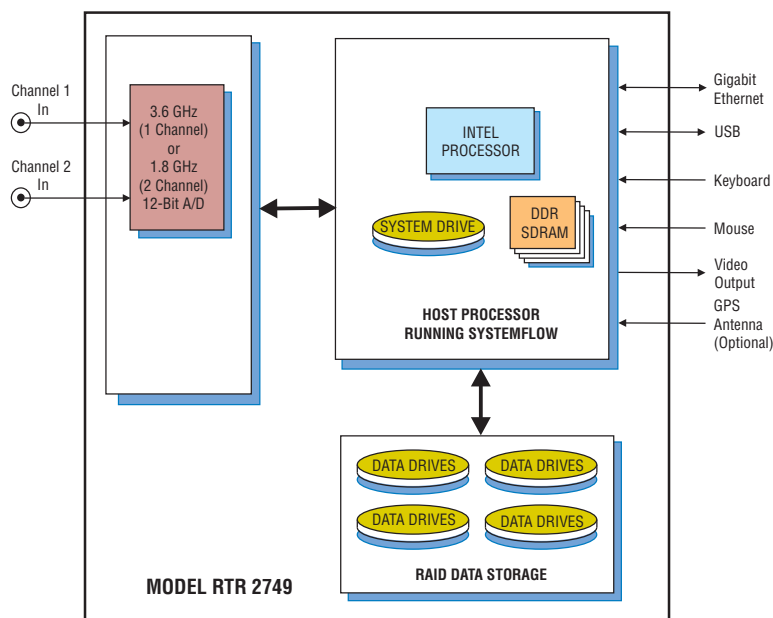
Rugged and Flexible Architecture

Because SSDs operate reliably under conditions of vibration and shock, the RTR 2749 performs well in ground, shipborne and airborne environments. The hot-swappable SSDs provide storage capacity of up to 46 TB. The drives can be easily removed or exchanged during or after a mission to retrieve recorded data.

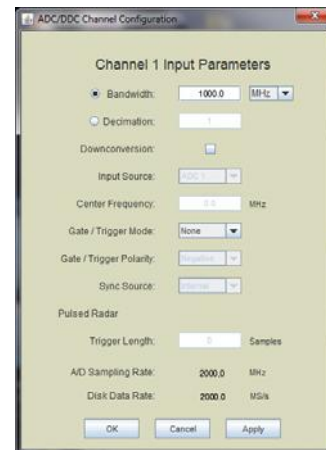
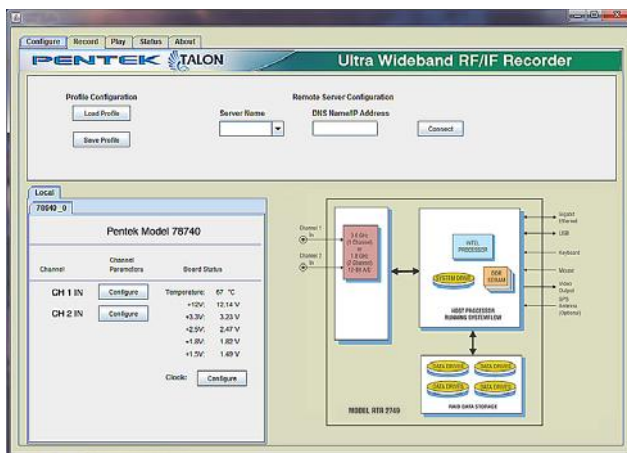
The RTR 2749 is configured in a 4U 19" rugged rackmount chassis, with hot-swappable data drives, front panel USB ports and I/O connectors on the rear panel.

Systems are scalable to accommodate multiple chassis to increase channel counts and aggregate data rates. All recorder chassis are connected via Ethernet and can be controlled from a single GUI either locally or from a remote PC.

Multiple RAID levels, including 0, 1, 5, 6, 10 and 50 provide a choice for the required level of redundancy. ➤



► SystemFlow Graphical User Interface

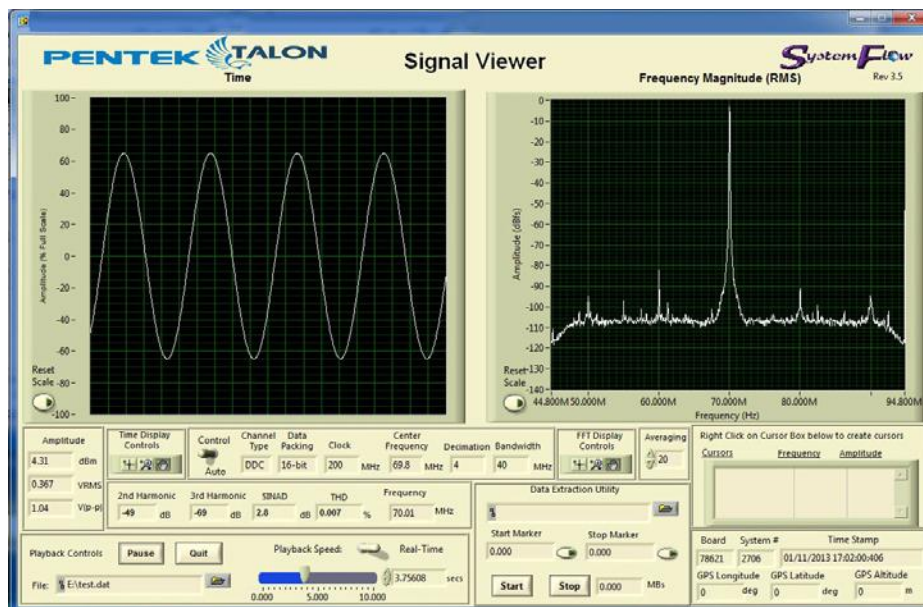


SystemFlow Recorder Interface

The RTR 2749 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 signals recorded on disk.

SystemFlow Hardware Configuration Interface

The RTR 2749 Configure screens provide a simple and intuitive means for setting up the system parameters. The configuration screen shown here, allows user entries for input source, sampling frequency, 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. ►

► Specifications

PC Workstation (standard configuration)

Operating System: Windows 7 Professional

Processor: Intel Core i7 processor

Clock Speed: 2.0 GHz or higher

SDRAM: 8 GB

RAID

Storage: 7.6, 15.3, 30.7 or 46.0 TB

Drive Type: SATA III SSDs

Supported RAID Levels: 0, 1, 5, 6, 10 and 50

Analog Signal Inputs

Connectors: Two rear panel SSMC connectors, In 1 & In 2

Input Type: Single-ended, non-inverting

Full Scale Input: +4 dBm into 50 ohms

Coupling: Transformer-coupled

Analog Input Transformers

Bandwidth: 4.5 kHz to 3.0 GHz

A/D Converters

Type: Texas Instruments ADC12D1800

Sampling Rate:

Single-channel mode: 500 MHz to 3.6 GHz

Dual-channel mode: 150 MHz to 1.8 GHz

Resolution: 12 bits

Maximum Usable Input Frequency

Single-channel mode: 1.75 GHz

Dual-channel mode: 2.8 GHz

Anti-Aliasing Filters: External, user-supplied

Digital Downconverters

Modes: One or two channels, programmable

Supported Sample Rate (f_s):

One-channel mode: 3.6 GHz

Two-channel mode: 1.8 GHz

Decimation Range (D):

One-channel mode: 8x, 16x, 32x, bypass

Two-channel mode: 4x, 8x, 16x, bypass

Usable Output Bandwidth: $0.8 \cdot f_s / D$

Sampling Clock Source: Internal fixed-frequency or programmable oscillator (selectable by option);

in single-channel mode, the sample rate is 2x the clock frequency; in dual-channel mode, the sample rate equals the clock frequency

Frequency Reference: Accepts external 10 MHz reference at 0 to +4 dBm to phase-lock the clock oscillator

Physical and Environmental

Size: 19" W x 26" D x 7" H

Weight: 60-85 lb

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 2749 Ordering Information and Options

Sample Clock Options

Option -910	User-Programmable Sample Clock
	Dual-channel mode sample clock range
	150 MHz – 945 MHz
	970 MHz – 1134 MHz
	1213 MHz – 1417.5 MHz
	Single-channel mode sample clock range
	500 MHz – 1890 MHz
	1940 MHz – 2268 MHz
	2426 MHz – 2835 MHz
Option -911	Fixed-frequency clock
	1.5 / 3.0 GHz sample clock
Option -912	Fixed-frequency clock
	1.6 / 3.2 GHz sample clock

Custom fixed-frequency sample clocks available upon request.

Storage Options

Option -415	7.6 TB SSD storage capacity	4.8 GB/sec
Option -420	15.3 TB SSD storage capacity	4.8 GB/sec
Option -430	30.7 TB SSD storage capacity	4.8 GB/sec
Option -440	46.0 TB SSD storage capacity	4.8 GB/sec

Note: Options -430 and 440 require a 26-inch deep chassis

General Options (append to all options)

Option -261	GPS time & position stamping
Option -264	IRIG-B time stamping

Contact Pentek for compatible Option combinations

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

Specifications are subject to change without notice