



**Features**

- Housed in a small chassis measuring 5.25" H x 8.5" W x 14" D
- Weighs 17 lb (7.7 kg)
- Shock and vibration-resistant SSDs perform well in vehicles, ships and aircraft
- 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-bit and 8-bit packing modes
- Real-time aggregate recording rate of up to 4.0 GB/sec
- Up to 30 terabytes of SSD storage to NTFS RAID solid state disk array
- Windows® workstation with high-performance Intel® Core™ i7 processor
- 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

**General Information**

Optimized for SWaP (size, weight and power,) the Pentek Talon® RTR Small Form Factor (SFF) product line provides the performance and storage capacity previously only possible in much larger rackmountable chassis. Measuring 5.25" H x 8.5" W x 14" D and weighing only 17 pounds (7.7 kg), this small package can hold up to 30.6 TB of SSD storage.

The RTR 2549 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 4.0 GB/sec.

An ATX power supply accepts 110-240 VAC, drawing under 150 W and typically around 100 W. SFF Models have the option for a 6-30 VDC power supply.

Eight front panel data drives can be easily removed along with a front panel removable OS drive to allow all non-volatile memory to be removed from the system in seconds.

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

**SystemFlow Software**

All Talon Rugged Small Form Factor recorders include the Pentek SystemFlow recording software. SystemFlow features a Windows-based GUI (Graphical User Interface) that provides a simple means to

configure and control the recorder. A user API is also included to allow custom recorder control interfaces to be easily built.

SystemFlow provides 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, spectrum analyzer and spectrogram displays.

Built on a Windows Professional workstation, all Talon SFF recorders allow the user to install post-processing and analysis tools to operate on the recorded data. The system records data to the native NTFS file system, providing immediate access to the recorded data files.

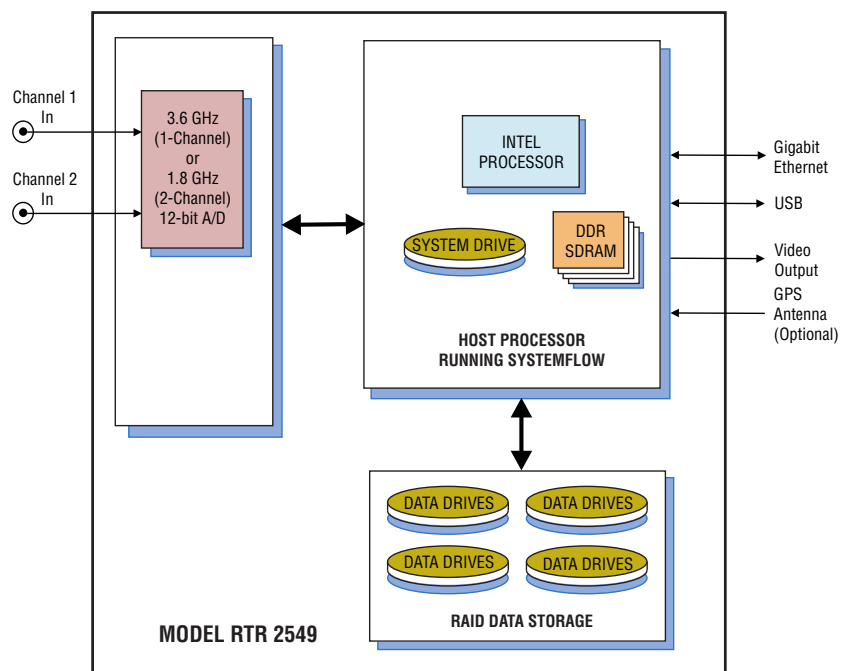
**Rugged Chassis with SSD Storage**

The SFF system is configured with hot-swappable SSDs, front-panel USB ports, and I/O connectors on the rear panel. It is built in a rugged steel and aluminum chassis and is tested for shock and vibration.

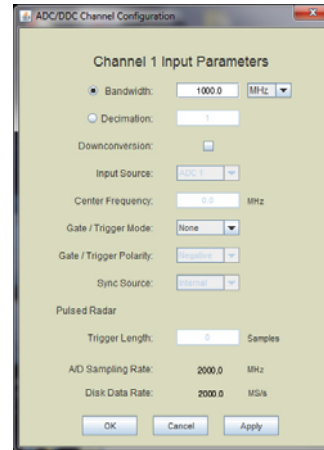
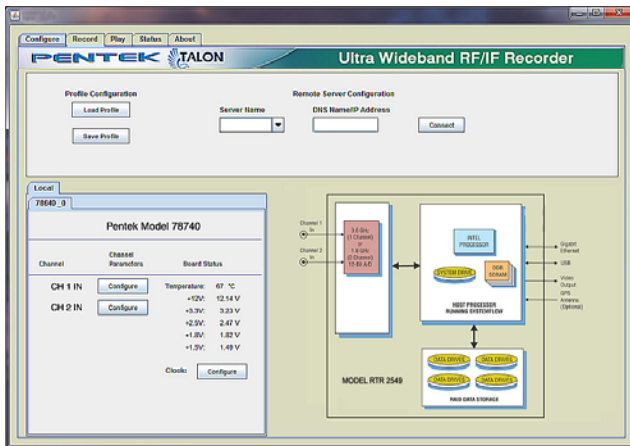
The SSDs provide storage capacities of up to 30.6 TB. Drives can be easily removed or exchanged during or after a mission to retrieve recorded data. Multiple RAID levels including 0, 5, and 6, provide a choice for the required level of redundancy.

A push of a button unlatches each of the data drives and the OS drive. Drives are mounted on sleds and can be easily transferred to an offload system while the recorder stays in the field.

PC and signal I/O is available on the rear panel with standard connectors. ➤



► SystemFlow Graphical User Interface

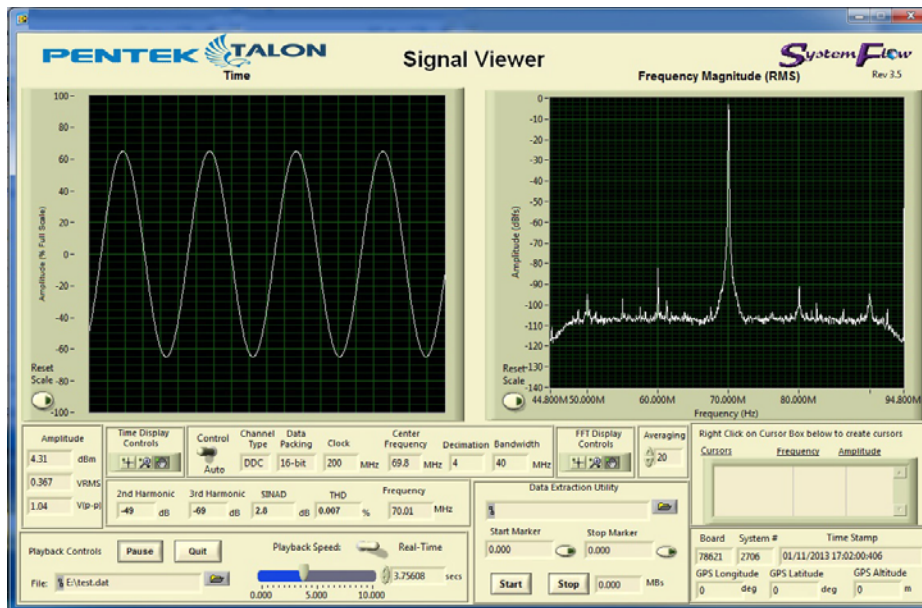


SystemFlow Recorder Interface

The RTR 2549 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 2549 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 workstation  
**Processor:** Intel i7 7700K (7th Gen) quad core processor  
**Clock Speed:** 4.2 GHz  
**Operating System Drive:** 250 GB SSD  
**SDRAM:** 8 GB standard, 16 GB or 32 GB optional  
**RAID**  
**Total Storage:** 3.8 TB – 30.6 TB  
**Supported RAID Levels:** 0, 5 and 6  
**Drive Bays:** Hot-swap, removable, front panel

Rear Panel I/O

Four USB 3.0 ports  
 Two Gigabit RJ45 ports  
 Two HDMI and One DVI ports  
 Audio and PS2 ports  
 USB 3.0 Type-C port  
 Two Wi-Fi antenna ports

Front Panel I/O

Two USB 2.0 ports  
 Power and recessed RESET buttons  
 LED indicators for power and HDD access

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:**  $0.8 \cdot f_s / D$

Physical and Environmental

**Size:** 5.25" H x 8.5" W x 14.0" D  
**Weight:** 17 lb (7.7 kg)  
**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, 150 W max.

Model RTR 2549 Ordering Information and Options

Storage Options

**Option -415** 7.6 TB SSD storage capacity  
**Option -420** 15.3 TB SSD storage capacity  
**Option -430** 30.6 TB SSD storage capacity

Additional Options

**Option -261** GPS Time and Position Stamping  
**Option -285** Raid 5 Configuration  
**Option -286** Raid 6 Configuration  
**Option -309** 16 GB System Memory  
**Option -310** 32 GB System Memory  
**Option -630** 6 to 30 VDC Power Supply

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