Model RTR 2548

1 GS/sec RF/IF Rugged SFF Recorder

TALON RTR RUGGED RECORDER

SystemFlow

Features

- Designed to operate under conditions of shock and vibration
- 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
- 1 GHz 12-bit A/Ds
- 1 GHz 16-bit D/As
- Real-time aggregate recording rates of up to 2.0 GB/sec
- 400 MHz record and playback signal bandwidths
- Recording of IF signals up to 2.0 GHz.
- Up to 30 terabytes of SSD storage to NTFS RAID solid state disk array
- RAID levels of 0, 5 and 6
- 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.

Configured with 1.0 GS/sec 12-bit A/Ds the RTR 2548 is capable of recording the full-channel bandwidth at a 2.0 GB/sec sustained rate to disk. A 1.0 GHz 16-bit D/A allows for real-time full-bandwidth signal reproduction.

A/D and D/Asampling rates are among the GUI-selectable system parameters, providing a fully programmable system capable of recording and reproducing a wide range of signals. A built-in synchronization module is provided to allow for multichannel phase-coherent operation.

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. An optional GPS receiver allows for precise GPS time and position stamping.

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.

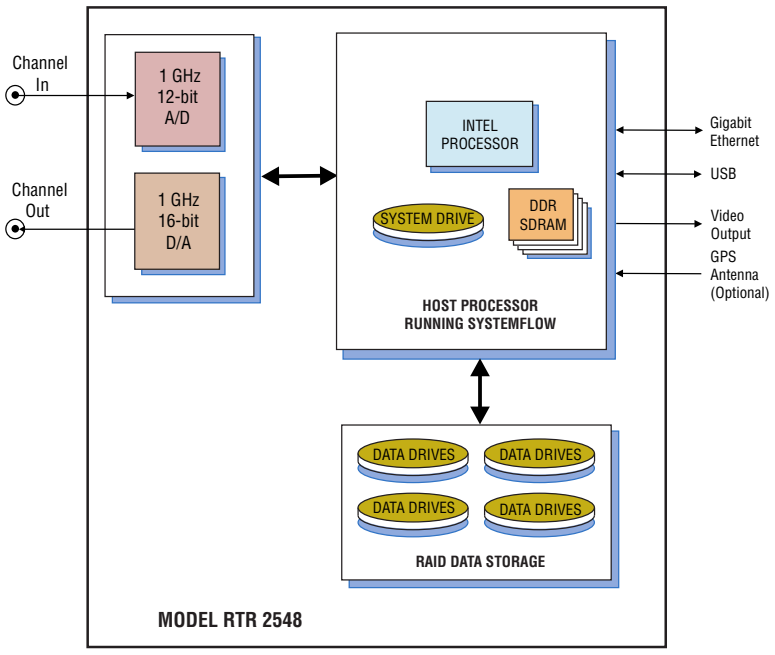
Rugged Chassis with SSD Storage

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. ➤



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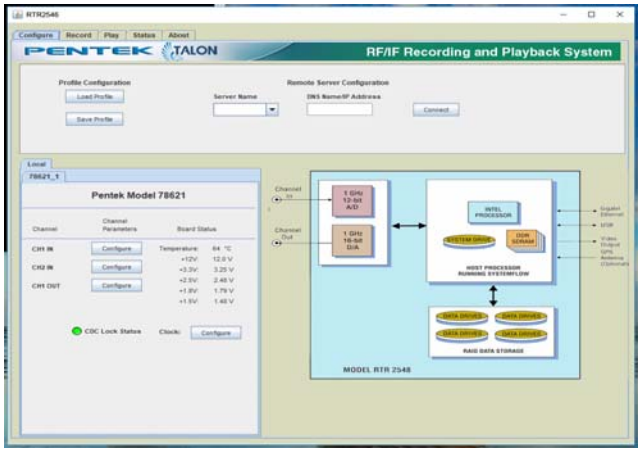
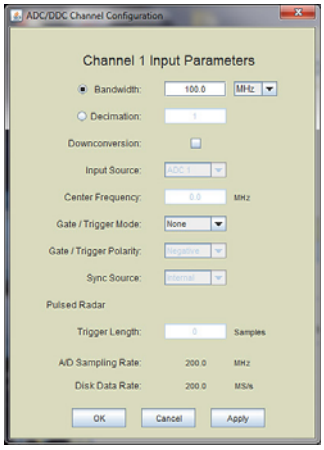
➤ SystemFlow Graphical User Interface



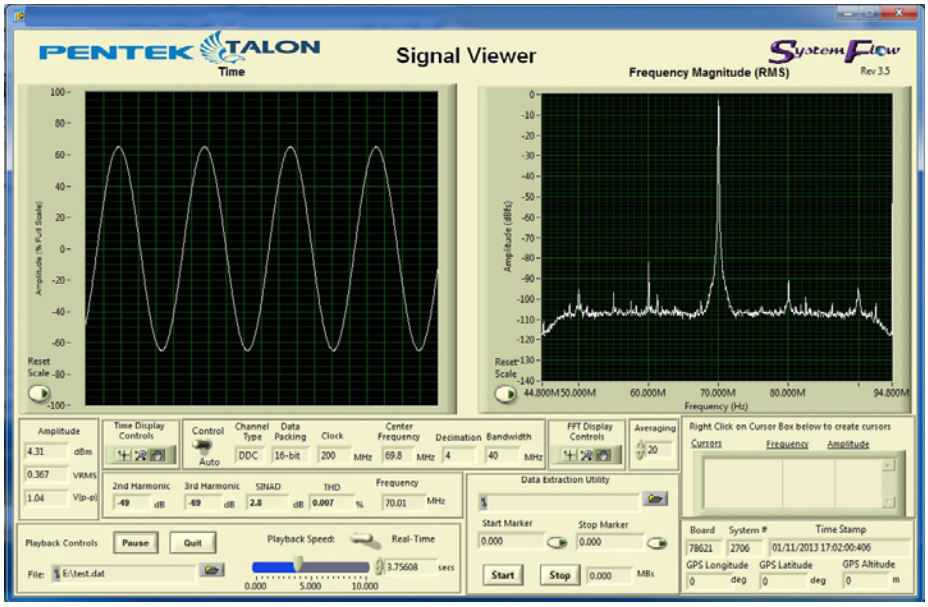


SystemFlow Recorder Interface

The RTR 2548 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 2548 Configure screens provide a simple and intuitive means for setting up the system parameters. The A/D configuration screen shown here, allows user entries for gate/trigger mode, gate/trigger polarity, and trigger source. 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. ➤

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➤ 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 acces

Analog Recording Input

Input Type: Transformer-coupled, female SSMC connector
- **Transformer Type:** Macom ETC1-1-13TR
- **Full Scale Input:** +10 dBm into 50 ohms
- **3 dB Passband:** 5 MHz to 2 GHz

A/D Converter
- **Type:** Texas Instruments ADS5400
- **Sampling Rate (f_s):** 100 MHz to 1 GHz
- **Resolution:** 12 bits
- **A/D Record Bandwidth:** $f_s/2$ = Nyquist bandwidth
- **Anti-Aliasing Filters:** External, user-supplied

Analog Playback Output

- **Output Type:** Transformer-coupled, female SSMC connector
- **Full Scale Output:** +4 dBm into 50 ohms
- **3 dB Passband:** 300 kHz to 700 MHz

D/A Converter
- **Type:** TI DAC5681Z
- **Interpolation:** 1x, 2x or 4x
- **Input Data Rate to DAC5681Z:** 500 MS/sec max.
- **Output Sampling Rate:** 1 GHz, max.
- **Output IF:** 700 MHz, max.
- **D/A Resolution:** 16 bits

Clock Sources: Selectable from onboard programmable VCXO or external clock

External Clock
- **Type:** Female SSMC connector, sine wave, 0 to +10 dBm, AC-coupled, 50 ohms, accepts 100 MHz to 1 GHz input clock or 10 MHz system reference

Internal Clock
- **Type:** Progammable VCXO
- **VCXO Frequency Ranges:** 100 to 945 MHz, 970 MHz to 1 GHz

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 2548 Ordering Information and Options

Channel Configurations

Option -201	1-channel recording
Option -202	2-channel recording
Option -221	1-channel playback
Option -222	2-channel playback

Storage Options

Option -410	3.8 TB SSD storage capacity
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 -625	Removable Operating System Drive
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 subject to change without notice

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