

New!

Model RTR 2613

Talon 3 GHz RF/IF Sentinel Intelligent Signal Scanning Portable Recorder



Features

- Search and capture system using Pentek's Sentinel™ Intelligent Signal Scanner
- Captures RF signals up to 3 GHz
- Capture and scan bandwidths up to 40 MHz
- 30 GHz/sec scan rate
- Selectable threshold triggered or manual record modes
- 16-bit A/D with 75 dB SNR & 86 dB SFDR
- Built-in DDC with selectable decimation range from 2 to 65,536
- Portable system measuring 16.0" W x 6.9" D x 13.0" H
- Lightweight, just less than 30 pounds
- Storage capacities to 61.4 TB
- RAID levels 0, 5, and 6
- Windows® workstation with Intel Core™ i7 processor
- Optional RF upconversion
- SystemFlow GUI with virtual oscilloscope, spectrum analyzer and spectrogram displays

General Information

The Talon® RTR 2613 combines Pentek's Sentinel Intelligent Signal Scanning software with real-time recording in a lightweight, portable and rugged package. The RTR 2613 provides SIGINT engineers the ability to scan the 3 GHz spectrum for signals of interest and monitor or record bandwidths up to 40 MHz wide once a signal band of interest is detected.

A spectral scan facility allows the user to sweep the spectrum at 30 GHz/sec, while threshold detection allows the system to automatically lock onto and record signal bands. Scan results are displayed in a waterfall plot and can also be recorded to allow users to look back at some earlier spectral activity.

Once a signal of interest is detected, the real-time recorder can capture and store up to 61.4 terabytes of data to disk, allowing users to store days'-worth of data.

Hardware Features

The Pentek Model 78621 Cobalt board transceiver serves as the engine of the RTR 2613 and is coupled with a 3 GHz tuner to provide excellent dynamic range across the entire spectrum. The 200 MHz 16-bit A/D board provides 86 dB of spurious-free dynamic range and 75 dB of SNR.

The FPGA-based DDC with selectable decimations up to 64 k provides exceptional processing gain while allowing users to zoom into communications signals of varying bandwidths.

The RTR 2613 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 in. LCD monitor, and up to 61.4 TB of SSD storage.

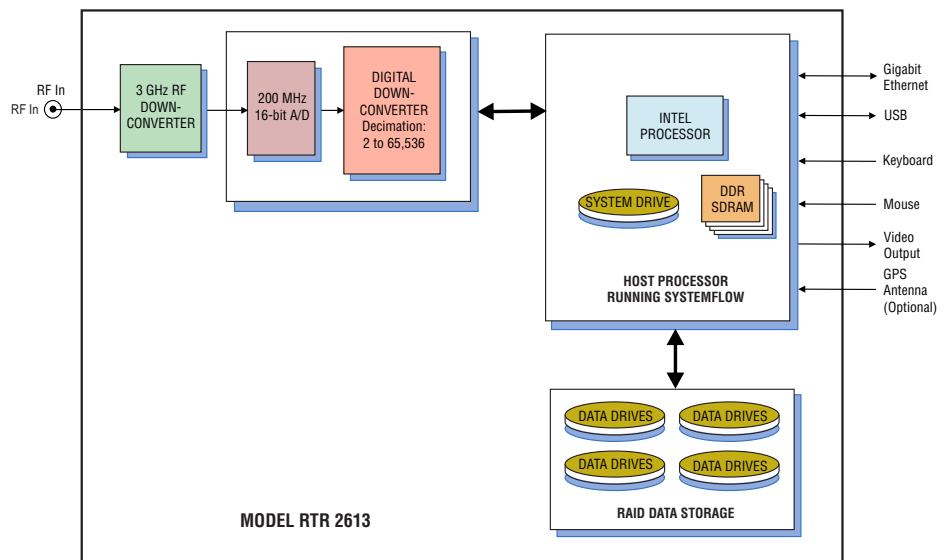
An optional GPS receiver and built-in PLLs allow all devices in the RF chain to be locked in phase and correlated to GPS time. GPS position information can optionally be recorded, allowing the recorder's position to be tracked while acquiring RF signals.

Sentinel Features

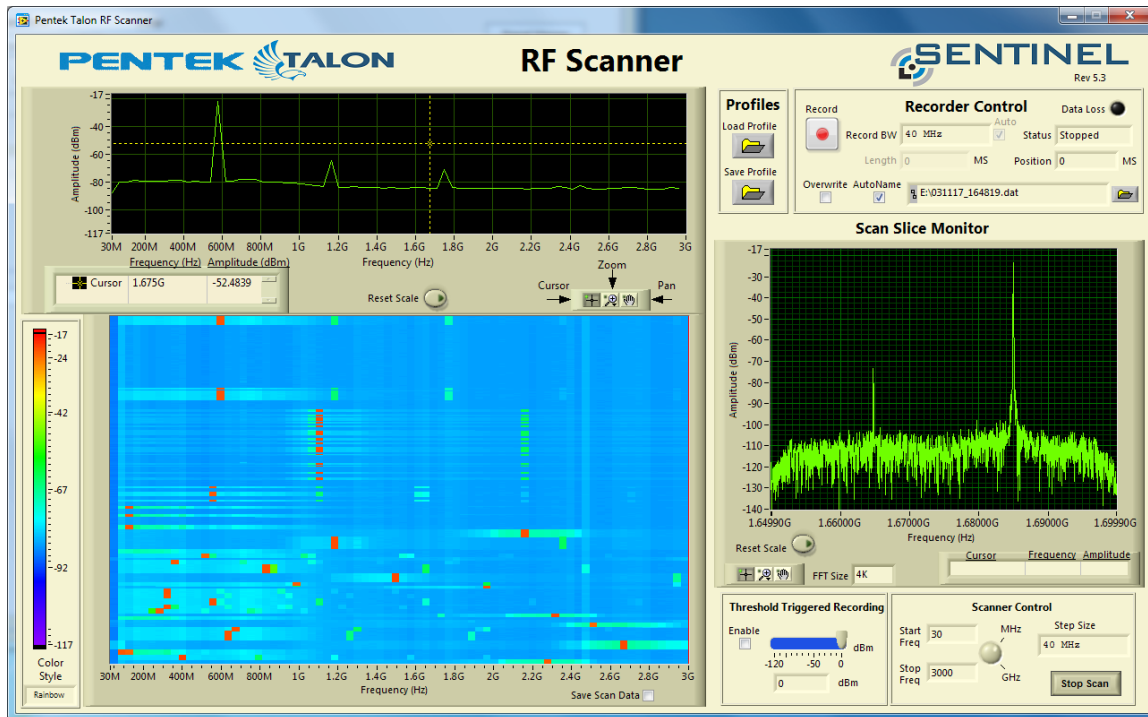
Pentek's Sentinel™ recorders add intelligent signal monitoring and detection for Talon real-time recording systems. The intuitive GUI allows users to monitor the entire spectrum or select a region of interest, while a selectable resolution bandwidth allows the user to trade sweep rate for a finer resolution and better dynamic range. Scan settings can be saved as profiles to allow for quick setup in the field.

RF energy in each band of the scan is detected and presented in a waterfall display. Any RF band can be selected for real-time monitoring or recording. In addition to manually selecting a band for recording, a recording can be automatically started by configuring signal strength threshold levels to trigger a recording.

The Sentinel hardware resources are controlled through enhancements to Talon's SystemFlow® software package that includes a virtual oscilloscope, virtual spectrum analyzer and spectrogram displays. These provide a complete suite of analysis tools to compliment the Sentinel hardware resources. ➤



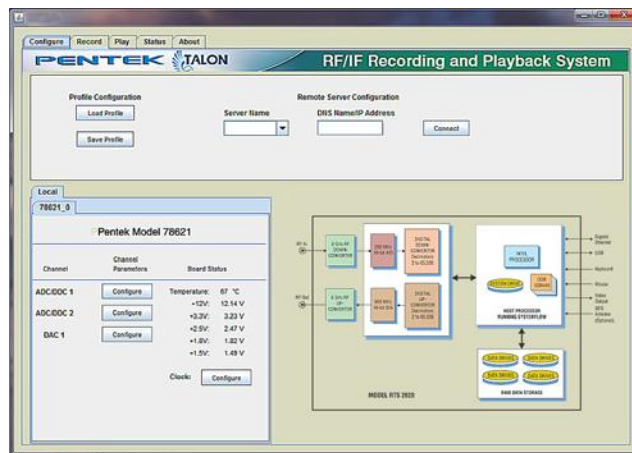
► Graphical User Interface



RF Scanner GUI

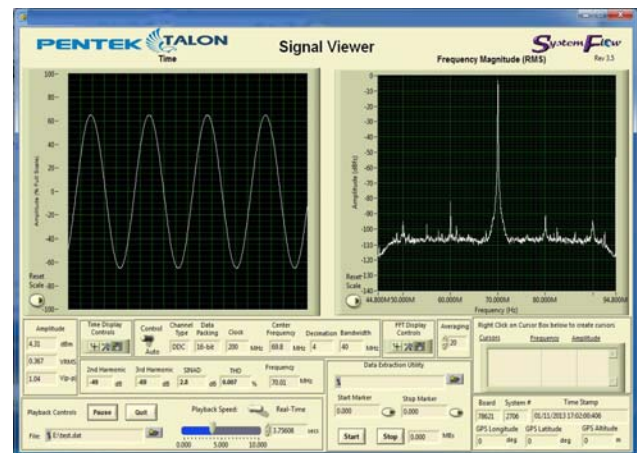
An RF Scanner GUI allows complete control of the system through a single interface. Start and stop frequencies of a scan can be set by the user as well as the resolution bandwidth. All user parameters can be saved as profiles for easy setup in the field.

Frequency slices from the waterfall display can be selected and monitored, allowing the user to zoom into bands of interest. Threshold triggering levels can be set to record signals that exceed a specified energy. Recordings can also be manually started and stopped from the RF Scanner GUI.



SystemFlow Recorder Interface

The RTR 2613 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, and play back a recorded signal. The signal viewer, integrated into the recording GUI, allows the user to monitor real-time signals or signals recorded on disk.



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.

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). ►

► SystemFlow Software

The RTR 2613 includes the SystemFlow® Recording Software. SystemFlow features a Windows-based GUI (Graphical User Interface) that provides a simple means to configure and control the recorder.

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 virtual oscilloscope, spectrum analyzer and spectrogram displays.

Built on a Windows workstation, the RTR 2613 allows the user to install post-processing and analysis tools to operate on the recorded

data. The RTR 2613 records data to the native NTFS file system providing immediate access to the recorded data.

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

Specifications

RF Tuner Specifications

RF Tuner Frequency Range: 30 to 3000 MHz

Tuning resolution: 1 kHz

Internal frequency accuracy: ±1.0 ppm (-20 to +60°C)

External Reference Input Frequency: 10 MHz

External Reference Input Level: 0 dBm ±3 dBm

RF input: 50 ohms nominal

Noise figure: 13 dB typical, 16 dB max

Maximum RF input without damage: +15 dBm

In-Band Input IP3: +3 dBm typical, -3 dBm min

In-Band Input IP2: +30 dBm min, +36 dBm typical

IF bandwidth: Nominal 40 MHz bandwidth (3 dB)

IF center frequency: 70 MHz center

Gain: +15 dB nominal above RF input

Gain control: Manual -40 dB range (min)

Image rejection: 65 dB min (> 80 dB typical)

IF rejection: 65 dB min (80 dB typical)

Phase noise at 2.500 MHz:

1 kHz offset: -75 dBc/Hz typical

20 kHz offset: -80 dBc/Hz max

100 kHz offset: -100 dBc/Hz typical

1 MHz offset: -125 dBc/Hz typical

Internally generated spurious: -100 dBm equivalent
RF input typical

Specifications continued on next page ►

► PC Workstation Specifications

Operating System: Windows workstation
Processor: Intel Core i7 processor
Clock Speed: 3.2 GHz or higher
SDRAM: 8 GB
RAID:
 Storage: 3.84 - 61.4 TB
 Supported RAID Levels: 0, 5 and 6

A/D Converter Specifications

Type: Texas Instruments ADS5485
Sampling Rate: 10 MHz to 200 MHz
Resolution: 16 bits
SNR: 75 dB_{f_s} typical at 70 MHz
SFDR: 86 dBc typical at 70 MHz
2nd Harmonic: 95 dBc typical at 70 MHz
3rd Harmonic: 87 dBc typical at 70 MHz
Next Worst Harmonic/Spurious: 90 dBc typical at 70 MHz
THD: 85 dBc typical at 70 MHz
SINAD: 73.7 dBc typical at 70 MHz
ENOB: 12.1 bits typical at 10 MHz

Digital Downconverter IP Core Specifications

Decimation Range: 2 to 64 k in two programmable stages of 2 to 256
LO Tuning Frequency Resolution: 32 bits, 0 to f_s
LO SFDR: >120 dB
FIR Filter: 16-bit coefficients, 24-bit output with user programmable coefficients
Default Filter Set: 80% bandwidth, <0.3 dB passband ripple >100 dB stopband attenuation

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 Specifications

Dimensions: Height: 13.0"
 Width: 16.0"
 Depth: 6.9"
Weight: 30 lb max.
Operating Temperature: 0 to +50 deg C
Storage Temperature: -40 to +85 deg 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, 50-60 Hz, ~500 W max.

Model RTR 2613 Ordering Information and Options

General Options

Option -261 GPS Time and Position Stamping
Option -264 IRIG-B Time Stamping
Option -285 RAID 5 Configuration
Option -286 RAID 6 Configuration
Option -309 16 GB System Memory
Option -311 64 GB System Memory
Option -681 18 to 36 VDC Power Supply

Storage Options

Option -402 480 GB SSD storage capacity
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 30.7 TB SSD storage capacity
Option -460 61.4 TB SSD storage capacity

Contact Pentek for compatible Option combinations
Storage and General Options may change, contact Pentek for the latest information

Specifications subject to change without notice