TeamSENTINELmicro GEN2

Like the teamSENTINELnano, teamSENTINELmicro GEN2 is designed to address the requirement for compact transportable wideband survey sensors, but with increased signal processing and recording capacity. The server platform is limited to a single Dell XR2 1RU server and graphics-GPU combined with an SSD storage subsystem to support increased acquisition bandwidth recording and MIL-SPEC ruggedization compliance.

Figure 19: Dell XR2 1RU Server for teamSENTINELmicro

The teamSENTINELmicro GEN2 supports the entire line of teamSENTINEL RF Conditioner modules (HF, HF/DF, V/UHF monitoring and V/UHF-DF-ready) with sensor acquisition bandwidths up to 176 MHz. The smallest form factor configuration incorporates Espy's GEN3 4-channel 1RU V/UHF RF Conditioner module which can record up to 128 MHz of digital RF spectrum to the single teamSENTINELmicro server. All teamSENTINELmicro V/UHF sensors are TNG/JICD 4.2-node compliant.

Figure 20: teamSENTINELmicro and High-gain V/UHF wideband antenna

Each teamSENTINELmicro system is equipped with a rack-mounted keyboard, 4K display and tracking device, providing access to the complete suite of teamSOIGNE applications and GUIs. All the sensor hardware is packaged in a ruggedized 3 or 4 RU equipment rack, complete with casters for easy handling.

Table 17: TeamSENTINELmicro Specifications

Feature	teamSENTINELmicro Specifications
Server Type	Dell Precision XR2 1 RU server
Hard Drive Configuration	SSD
SSD Capacity	3.84 TB
Number of SSD per Server	8
Random Access Memory (RAM)	At least 192 GB
Processors	Dual Intel Xeon Gold series
RF Monitoring Recording Capacity	10-Hours@128MHz
Graphics Display Processor	NVIDIA Quadro series
Flat Panel (built-in)	17" (3840 x 2160 pixels)
TNG-node Compliant geolocation	TDOA/FDOA (with GPS-disciplined reference)
Angle of Arrival Direction Finding	Optional – Contact Espy for details
GPS Input / Connector	Built-in High-Performance GPS Time/Frequency/NTP unit (SMA connections available for external 1PPS and 10 MHz)
1PPS Reference	
10 MHz Reference	
Sub-Channels per Tuner	Configurable
dB Full Scale (dBm)	-30 dBm
Typical Noise Figure	+13 dB
IIP3 (dBm)	+3
Maximum Bandwidth Monitor / (DF)	176 MHz/88 MHz (RF Conditioner dependent)
Rack Units	3 RU or 4 RU (RF Conditioner dependent)
Input Voltage	90 VAC to 250 VAC autosensing

TeamSENTINEL and teamSENTINELmini Sensors

Ongoing advancements in the realm of software defined radios, computer servers, network interfaces and hard drives have enabled Espy to periodically offer significant increases in tuner/sensor acquisition bandwidths and recording capacities. Concomitant with these advancements are reductions in SWaP (space, weight and power) specifications, allowing TeamSENTINEL sensors to deliver substantially more capacity in a smaller and often less expensive equipment kits.

Current Dell servers (XR2 and R740xd) provide extreme density in processing and storage, making them ideally suited to the demands of a teamSENTINEL digital RF recording sensor. They offer multi-core processing, very large main memory subsystems, high performance GPU signal processors, and hardware RAID protected disk storage subsystems. These characteristics feed Espy's ever increasing demand for real-time signal processing, streaming-data I/O and system reliability.

Espy's family of teamSENTINEL and teamSENTINELmini Sensors incorporate RF Conditioner front-ends that have been outfitted with the latest and most advanced RF components and RF receiver subsystems. Our HF RF Conditioners utilize only the best wideband RF amplifiers, attenuators and bandpass filters and are renowned by the SIGINT/SIGDEV community for their signal quality, reliability and low cost. Espy's V/UHF-band RF Conditioners are outfitted with leading-edge, multi-channel, geolocation-enabled and VITA-49 compliant digital wideband receivers. Espy's DF-enabled RF Conditioners include integrated RF multi-couplers and RF band switches to provide operators with a seamless tuning across the entire V/UHF band.