

## DATA SYSTEMS



# RSR

## Radio Signal Recorder for critical applications



TELEMETRY GROUND SOLUTIONS



Safran Data Systems' RSR is a **digital recorder** allowing the capture and reproduction of the RF or IF analog signal received at the antenna **before any data processing**. It is the key building block of a Telemetry Station to bring **the highest critical data availability**, especially when recording is not possible on-board.

Data captured during the flight can be processed offline, with all the flexibility to adjust various settings in the receiver, the bit synchronizer or the decommutator, to squeeze **each and every bit out of the recording**, which is **only possible when recording RF or IF**.



Launch Vehicle Telemetry



Missile Testing



Fixed & Rotary Wing

### The RSR comes in 3 different versions:

TYPE	RF/IF	WB	PCM	AGC A/D	Storage	Throughput
RSR	4 IF	-	(8 in option)	4/4	4TB (8TB, 6 or 12 TB Raid 5 in option)	80MHz / 2Gbps (160MHz / 4Gbps in option)
RSR - RF	2 RF/IF	-	-	-	4TB (6 TB Raid 5 in option)	80MHz / 2Gbps (160MHz / 4Gbps in option)
RSR - Power	2 IF	8	8	8/2	10TB Raid 5 (20TB in option)	320MHz / 5+ GBps

#### RF OR IF RECORDING

Record Telemetry Signal as close as possible to the antenna for Highest Data Availability

#### ALL TYPE OF SIGNALS

RF or IF Telemetry, Wide Band Analog, PCM Streams, AGC & IRIG Time

#### PRE-FLIGHT STATION CHECK

Long Loop Check Secure Station Settings while Replaying Previous Flight Records

#### 8.4" SCREEN

Intuitive GUI, Keyboard and Touchpad for Full and Easy Direct Control

#### CH.10 RECORDING FORMAT

All Recordings done according to Ch10 Standard

> SIGNAL TECHNICAL SPECIFICATIONS

**RF Channel (RSR - RF)..... 2**

Center Frequency (In & Out)..... 900 – 2400 MHz or 66-74 MHz selectable  
 Bandwidth ..... 0.625 to 40 MHz / Channel  
 Level ..... -90 to -30 dBm  
 Impedance ..... 50 Ω  
 Sampling Rate ..... > 2.5 x BW @250 Msps  
 Sample Resolution ..... 8 / 16 bits

**IF Channel..... 4 on RSR, 2 on RSR-Power**

Center Frequency ..... 66-74 MHz selectable  
 Bandwidth ..... 0.625 to 40 MHz / Channel  
 Level ..... -10 to +5 dBm  
 Impedance ..... 50 Ω  
 Sampling Rate ..... > 2.5 x BW @250 Msps  
 Sample Resolution ..... 8 / 16 bits

**Wide Band Channel (RSR - Power)..... Up to 8**

Frequency ..... DC – 40 MHz  
 Bandwidth ..... 0.625 to 40 MHz / Channel  
 Analog Level ..... 10 Vpp  
 Input / Output Impedance ... 50Ω / 75Ω / 1kΩ selectable (100kΩ Output only)  
 Sampling Rate ..... > 2.5 x BW @250 Msps  
 Sample Resolution ..... 8 / 16 bits  
 Coupling ..... AC / DC

**AGC Channel ..... 4 on RSR, 8 on RSR-Power**

Bandwidth ..... 50 kHz / Channel  
 Analog Level (In& Out) ..... 10 Vpp  
 Input / Output Impedance ..... 50 Ω / 75 Ω  
 Digital Mode (RTR-RSR)..... 4 on RSR, 2 on RSR-Power

**PCM Channel ..... 8 on RSR-Power, 8 in option on RSR**

Bit Rate per Channel ..... From 1 kbps to 40 Mbps  
 Format / Level..... TTL / RS422  
 Impedance (In/Out)..... TTL: 50, 75Ω (1kΩ Input only) RS-422 120Ω  
 PCM Code ..... NRZ-L/M/S & Bi-phase L/M/S  
 Data + Clock Sync ..... Rising / Falling Edge / Channel

**Recording**

File Format ..... IRIG-106 Chap. 10 Compliant  
 File Selection ..... Space Time Navigator  
 System State ..... Record, Replay, End-to-End  
 Monitoring & Control ..... Front Panel Touch Screen  
 ..... Remote GUI via TCP/IP  
 Protected Embedded OS ..... NIST 800-53, SHB  
 Network ..... IPV4/IPV6 2 Gbit RJ-45

**Storage**

Removable Cartridge ..... 1 or 2  
 Cartridge Size ..... 4 TB, 6 TB or 10 TB  
 RAID ..... 0/1/5 with HW Controller  
 Aggregated Data Rate ..... Up to 5+ Gbps  
 Recording Time ..... > 2 hours @ 5 Gbps  
 File Transfer ..... FTP / SFTP Server  
 External Disk ..... USB 3.0

**Data Processing**

Streaming ..... UDP Ch10  
 Spectrum Analyzers ..... RF, IF & HBW Channel

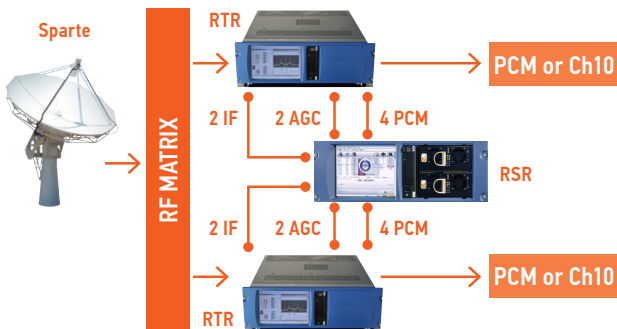
**Time & Synchronization**

IRIG Time Code ..... IRIG-B122  
 Input Level ..... 0.1 to 6 Vpp  
 Impedance ..... 100 kΩ In / 50 Ω Out  
 1 PPS ..... LVTTTL 50 Ω Rising  
 External Ref Frequency ..... 10 MHz, 0.2 to 2 Vpp / 50Ω

**Environmental specifications**

Touch Screen TFT Color ..... 8.4"  
 Chassis ..... 4U, 19" (7"H x 19"W x 22"D)  
 Weight (without Storage) ..... 25 kg (55 lb)  
 Operating Temperature ..... +10 °C to +40 °C (50 to 104 °F)  
 Storage Temperature ..... -20 °C to + 60 °C (-4 to 140 °F)  
 Relative Humidity ..... <90 % Non Condensing  
 Power ..... 100 – 240 VAC / 50-60Hz  
 Power Consumption ..... < 450W

RSR-IF implementation in a station



RSR-RF implementation in a station



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