RSR
Radio Signal Recorder for critical applications

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.

The RSR comes in 3 different versions:

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

**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

Launch Vehicle Telemetry
Missile Testing
Fixed & Rotary Wing
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 Mspss
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 Mspss
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 Mspss
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 Ω, 75 Ω (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 & HBD Channel

Time & Synchronization
IRIG Time Code ...................... IRIG-B122
Input Level ........................................ 0.1 to 6 Vpp
Impedance ........................................ 100 kΩ In / 50 Ω Out
1 PPS ........................................ LVTTL 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

GLOBAL SALES
5, Avenue des Andes - CS 90101 - 91978 Courtaboeuf Cedex - FRANCE – Tel.: +33 1 69 82 78 00 - Email: sales.sdsy@safrangroup.com
USA
3005 Business Park Dr - Norcross, GA 30071 - USA – Tel.: +1 770 753 4017 - Email: sales@SafranDataSystemsUS.com

Sparte
SRS-IF implementation in a station

RSR-RF implementation in a station

Boresight or test Dipole