***A complete***

***IN-SNEC***

***turnkey***

***solution***

***for YOUR***

***remote sensing***

***requirements***


For more information, refer to the IN-SNEC data sheets :

- FTP.000103 - X-band compact station
- FTP.000101 - X-band Low Noise Amplifier
- FTP.000111 - X-band frequency converters

## Ordering information

| | | |
|---|---|---|
| **Model references** | HDR without test modulator | **SM271002** |
| | HDR with test modulator | **SM271003** |

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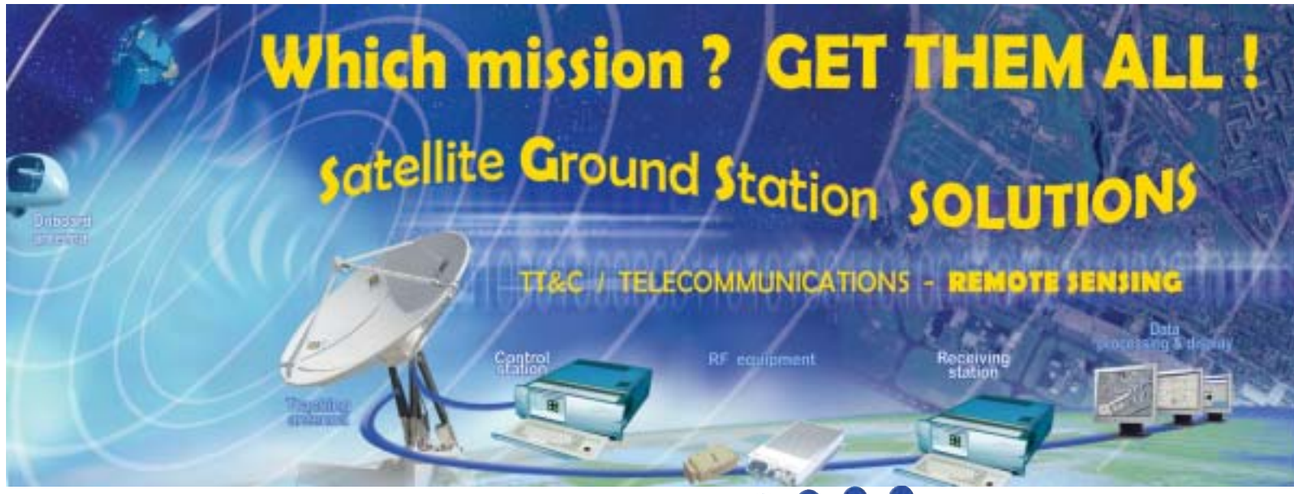


# HDR XXL

## Multi-Mission
## High Data Rate Receiver

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CORTEX Series

## Missions

- Software Defined Radio
- Reception and demodulation for high data rate scientific, remote sensing and telecommunication applications.
- Data acquisition through the Network
  - GbEthernet
  - Storage Area Network

### Examples of missions

(supported without hardware redesign)

| | | | | |
|---|---|---|---|---|
| ERS SERIES | OFEK | ENVISAT | ICESAT | SDO |
| AQUA/TERRA | SPOT 4/5 | Radarsat 1/2 | METOP | IRS |
| CORIOLIS | Landsat-7 | NPOESS | EROS-A | LRO |
| IKONOS | PLEIADES | GOES-R | ORBVIEW-3/5 | |

## Main Benefits & Features

- Flawless mission versatility
  - Perform all current and future missions without hardware redesign
- High data rate payload reception and demodulation
  - Continuously tunable from 500kbps to 2Gbps
- Digital down conversion capabilities
  - Cost effective from a system point of view
  - Multiple demods on a single HDR board
- Highly scalable demod
  - Software upgrade

- DSP based technology with direct analog-to-digital conversion of the received signal
- Full FPGA design
- BPSK, QPSK, O/S QPSK. A/U QPSK, 8PSK, GMSK
- Front end processing
- Less hardware for reliability improvement
- Software based on standard Pentium PC server
- Built-in test & simulation facilities
- Adaptative filtering

# HDR

## Multi-Mission High Data Rate Receiver

## IF Reception

- Dual IF input
- Input Frequency: 2x 720 MHz ±200 MHz & 1.2GHz ±330MHz
- Input impedance: 50Ω
- AGC time constant: 1 ms
- IF level variation: ≤ 15 dB/sec
- Carrier acquisition range: ±10 kHz to ±1MHz
- IF bandwidth: Automatically adjusted from the symbol rate

## Demodulation

- Demodulation: BPSK, QPSK, O/S QPSK. A/U QPSK, 8PSK, GMSK
- Continuously tunable: from 500 kbps to 2 Gbps
- FEC decoder: Viterbi (1/2, 1/3, 3/4, 5/6) Treillis LDPC 7/8
- Synchronization threshold: ≤ 1 dB (Eb/No)
- Acquisition time: ≤ 0.25 second
- Real time status: IF level, Doppler level, Eb/No level, BER level

## Bit synchronization

- Acquisition range: ± 0.3% of the symbol rate
- BER degradation: 0.3 dB @300Mbps and BER $10^{-6}$; <2 dB @1Gbps and BER $10^{-6}$
- Matched filter: I & D, Root Raised, Root Raised cosin GMSK, Auto-adaptative
- Symbol clock display
- Output ports: Separate or merged I & Q channels (Data & Clock)
- Output (electrical): ECL

## Front End processing

- Optional software licence
- Real time data storage
- TCP-IP data interface: 1 Gbits Ethernet
- Frame synchronization
- Telemetry Quick Look
- Data decoding: Viterbi single, dual, parallel, RS-CCSDS, RS-DVB, LDPC 7/8
- Derandomizing

## Test Modulator board (optional)

### IF carrier

- Carrier Frequency: 720 MHz, 1-2 GHz
- Output level: 0 to -40 dBm (1 dB step)

### Noise Source

- Noise density: -105 to 135 dBm/Hz (1 dB step)
- Noise bandwidth

### Modulation

- Modulation: B PSK, QPSK, O/S QPSK. A/U QPSK, 8PSK, GMSK
- Continuously tunable: from 500 kbps to 2Gbps

### PCM simulation

- Operating mode: ASCII coded file on hard disk or pseudo-random pattern
  - Pseudo-random pattern length: $2^{10}$, $2^{11}$, $2^{15}$, $2^{23}$
- BER test capability

## Mechanical specifications

- PC chassis
  - Height: 7”
  - Width: 19”
  - Depth: 550mm

## Power supply

- Power supply: Auto range 90-265 VAC 47 to 63 MHz
- Maximum consumption: 1.5 A peak, 220V

## Environment

- Operating temperature: +10°C to +40°C
- Storage temperature: - 20°C to +60°C
- Relative humidity: 40% to 90% non condensing

## Interconnection

- ECL interface
- SMA connectors

## Architecture

- The HDR is monitored and controlled via an Ethernet port using TCP-IP protocol. The built-in Graphic User Interface uses the same TCP-IP communication interface allowing full control of any HDR from any PC workstation connected to the network.