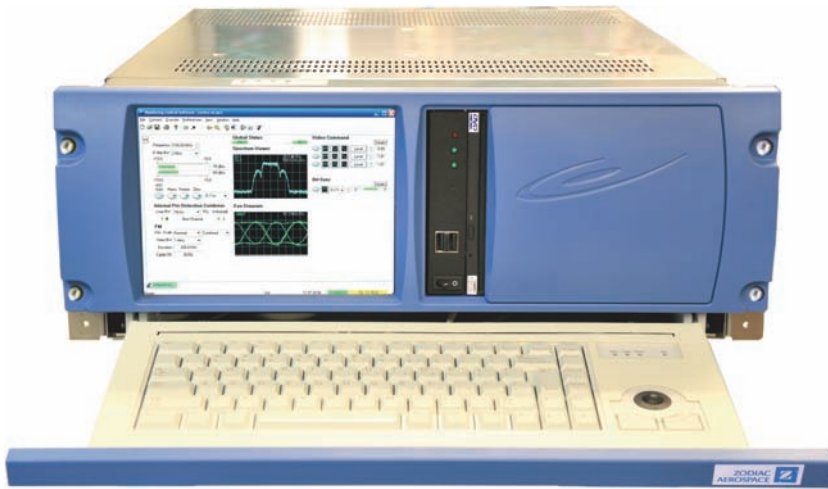


# Cortex RTR - Radio Telemetry Receiver



IN-SNEC®

CORTEX Series

With more than 40 years of experience in telemetry, the Cortex RTR, based on the famous Cortex architecture, is the worldwide acclaimed COTS integrated telemetry receiver from ZODIAC DATA SYSTEMS. Its latest release strengthens its position as the most advanced digital telemetry receiver on the market.

Thanks to its new modular architecture, the 4U chassis-based Cortex RTR can support up to four channels in IF, P, L, S and C bands, allowing multiple carrier reception and combination as well as low / high gain antenna selection.

Its powerful front end features an IRIG 106-07 Tier II compliant phase noise, an outstanding 110dB-dynamic linear AGC and an unmatched adjacent channel rejection with 8 SAW filters.

The redesigned MMI gives the operator a state of the art and very intuitive approach in set-up and monitoring (one touch mission loading, visual block diagram representation, Eye Diagrams & Spectrum Viewer displays ...)

Not only the FPGA-based architecture offers a versatile and reliable digital processing but it empowers the user with a long-term provision for supporting higher bit rates, new demodulation and much more just through simple user-made on-site software upgrades. Moreover, spare PCI slots can be used for future hardware upgrades like the add-on of C-band module for the S to C-band transition.

Since 2002, it is more than 800 Cortex RTR that have been selected by the most demanding flight test customers from governmental test ranges, aircraft manufacturers and space agencies.

Cutting-edge  
Multi-h CPM

The new generation of  
cost-effective and high  
performance COTS solution

## Main Features

- Single, dual & quad channels IF/P/L/S/C band (fully independent)
- Excellent phase noise compatible with Tier II modulations
- Optimum ratio Pre-D combiner (available in frequency & polarisation diversity) with automatic switching to Best Source Selector mode
- Up to 6 multi-mode demodulator Tier 0,1,2 (PCM-FM, SOQPSK, Multi-h CPM)
- Unprecedented multi-h CPM BER & acquisition time
- AM demodulation for antenna tracking
- PC-based with Windows XP OS environment
- 2 types of chassis :
  - ◆ standard (screen and built-in keyboard)
  - ◆ blind (no screen, no keyboard)
- Up to 6 embedded 30Mbps bit synchronizers , PCM demodulators and PCM simulator with telemetry over IP (TMoIP) compatible with Eurilogic MAGALI software
- Decoders : FEC (Viterbi, ...), Reed Solomon, ...
- Built – in S-band test generator and BER Tester
- Simultaneous spectrum viewer & eye diagram
- 100% in-house designed product

## Main Benefits

- User-friendly and intuitive MMI
- High integration with drastically reduced hardware for increased availability
- Enhanced performances, upgradeability and flexibility due to extensive use of Digital Signal Processing techniques
- No tuning, no preventive maintenance
- RF design performances better than IRIG106
- Fast diagnostic & assistance

ZODIAC DATA SYSTEMS

AEROSAFETY & TECHNOLOGY  
Telemetry & Telecommunications

ZODIAC  
AEROSPACE 

## Technical specifications

### Radio

Frequency range (and / or)	
C-band (EU)	5091 – 5250 MHz
C-IF-band (US)	400-459 MHz / 610-1150 MHz
Upper L-band	1710 – 1850 MHz
Lower L-band	1429 – 1545MHz
P-band	200 – 500 MHz
IF	70 MHz
RF inputs	up to 4 (N-type 50 Ω)
IF inputs / outputs	up to 4 / 6 (from/to IF recorder RSR)
Dynamic range	-10 dBm to noise threshold
Non destructive level	+ 10dBm
Noise figure	< 12 dB (8 dB typ.)
Spurious signal rejection	> 60 dBc
VSWR	2 : 1
Phase noise	IRIG 106-07 Tier II compliant
IF analog filters	8 pre-selection SAW (500kHz to 40MHz)

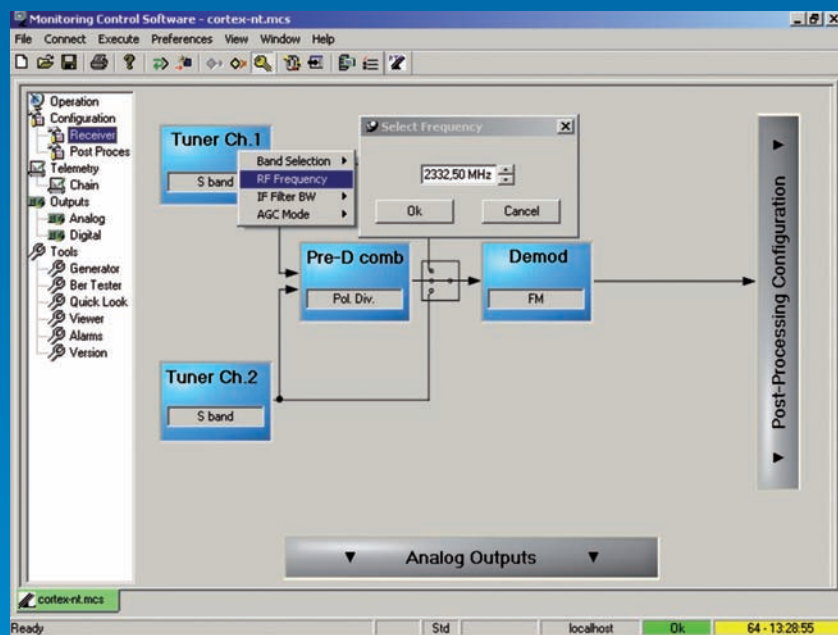
### Signal processing

IF filters	30 FIR digital filters (3kHz to 40MHz)
AGC modes	Automatic / Manual / Freeze
AGC time constants	5 (0.1 to 1000 ms)
AM response	from AGC cut-off to 50 kHz
Diversity combiner	Polarisation (or space) & Frequency
Combiner balance control	Equalizes CH1/CH2 noise floors
Combiner modes	Pre-D dual channels with optimal ratio and automatic best source selection (CH1/CH2 fade level of 5 dB)
Pre-D gain	> 2.5 dB for two identical SNR
Pre-D tape recording & playback	5kHz to 10MHz
Demodulation	FM, PM, AM (auto-tracking), BPSK, QPSK, OQPSK, SOQPSK, Multi-h CPM
Video filtering	17 digital filters (12.5 kHz to 40 MHz)
De-emphasis (TV)	CCIR 405-1 (525 or 625 lines)
Bit synchronizers	RS422 and/or TTL outputs
PCM codes	NRZ-L/M/S, BP-L/M/S, DM-M/S, differential, RNRZ-L...
Bit rates (max)	PCM/FM 30 Mbps FM with trellis 22Mbps QPSK 20 Mbps SOQPSK 40 Mbps Multi-h CPM 37 Mbps
Decoders (CCSDS)	Viterbi (7,1/2) Reed Solomon (223,255)

### Miscellaneous

M&C	local or distant PC (via TCP-IP)
Rackable chassis	19-inch, 4 U, D=550mm
Operating temperature	+10°C to +50°C
Storage temperature	-40°C to +70°C
Power supply	100-240 VAC, 50-60 Hz

# Cortex RTR



## NEW DEVELOPMENTS

- ▶ Smart Soft Selector embedded for PCM stream selection
- ▶ Turbo product decoder embedded for improved transmission
- ▶ Dynamic blind equalizer solution for multipath mitigation
- ▶ Signal Degradation Indicator (SDI) output compatibility with RF Network Model 2241
- ▶ True real-time ZDS Advantys decommutation board integrated

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Z.D.S. reserves the right to change specifications without notice - FP 8021