T400RCV
Narrowband Receiver

Overview
The Kratos RT Logic T400 Receiver System (T400RCV) is a modular, firmware-defined receiver and digital processing unit. The system’s flexible architecture allows the T400RCV to support many different mission configurations. Firmware-defined waveform processing allows the T400RCV to be used as a replacement for legacy receiver models or for new applications. Multichannel systems support diversity combining or multiple simultaneous downlinks.

Applications
The T400RCV is ideal for aircraft, missile, and satellite telemetry ground station and test applications. The standard packaging is a 19-inch, rack-mount unit capable of hosting multiple downconverters, upconverters, and demodulator card(s). Two enclosure options (5U, 2U) provide the ideal combination of rack density, fault tolerance, flexibility, and cost to meet your needs.

The T400RCV is controlled via the local Kratos RT Logic Graphical User Interface (GUI), the same GUI over the Wide Area Network (WAN), or by your application using an Application Programming Interface (API). Plots of input spectrum and In-phase and Quadrature (I/Q) constellation plots are standard on the RT Logic GUI.

All signal processing is performed in software and Field-Programmable Gate Array (FPGA) firmware. The firmware approach combines the custom and multi-mission processing capabilities of software-based systems with the speed, low latency, and low latency variability of an analog system. The T400RCV uses one or more of the Kratos RT Logic Digital Transmitter Receiver (DTR-D) series cards as signal processing engines. The DTR-D supports the full range of RT Logic’s demodulation modes including: PSK, PM, FM, and USB (STDN). Custom waveforms are also supported.

Key Features
- 2U or 5U 19” Rack-mountable
- 24” Deep Chassis
- Front Panel Test Points
- Front Panel LEDs and LCD
- Dual-Redundant, Hot-swappable
- Power Supplies
- Optional Display/Keyboard/ Mouse/KVM
- 2U or 5U 19” Rack-mountable
- 19” Industrial Active Matrix TFT LCD Panel
- 8-port KVM with IP Console
Block Diagram

Features

• Demodulation
  - Direct PSK (BPSK/QPSK/8PSK/16PSK/OQPSK/UAQPSK/SOQPSK), AM, FM, PCM/FM
  - Symbol Rates: Up to 100 Msps
  - Subcarrier BPSK/QPSK
  - Viterbi, LDPC, R-S, TPC Decoding
  - DVB-S2
  - Subcarrier Frequency: 1 kHz to 20 MHz
    - Bit Synchronization, Decoding (PCM Code Processing, I/Q Re-interleaving, Derandomization)
    - Spread Spectrum: TDRSS Format, SQPN, Others

• Diversity Combining
  - Pre-detect
  - Post-detect

• I/O
  - L/S/C/X-band Input/Output
  - 70 MHz I/F Input/Output
  - Custom IF Available
  - Baseband Analog Input/Output
  - I/Q Channel Data & Clock Output
  - Simulated Telemetry Data & Clock Input
  - CCSDS, IRIG-106 Data over Ethernet

• Test Modulator
  - Full BERT Loopback Capability