

Airborne Wireless Network Transceiver



nXCVR-2120A-1

Description

The nXCVR-2100 Series IP transceivers are designed for air-to-ground and ground-to-air wireless OFDM-based communications. The transceivers work together to perform the function of a router, transparently interconnecting up to 32 wireless networks into a hub and spoke configuration. Bandwidth is shared among all the remote networks, each network receiving one or more timeslots for transmitting and receiving packets between itself and the hub transceiver. Timeslots are statically allocated by the user during the network configuration process.

The nXCVR-2100 Series transceivers include a 100/1000BASE-T Ethernet interface, multiple serial ports for external device control, a high-speed RISC processor and a power-efficient RF transmitter and receiver module. The transceivers incorporate the latest modulation and power-efficient technologies to provide maximum transmission distance under harsh environmental conditions.

The 2100 Series includes two models with differing frequency ranges. The single-port transceivers connect to a single RF antenna that provides both transmit and receive functions.

The 2100 Series IP transceivers exceed the IEEE 802.11a standard for processing speed, waveform compliance, and RF output power and support Simple Network Management Protocol (SNMP) for remote management.

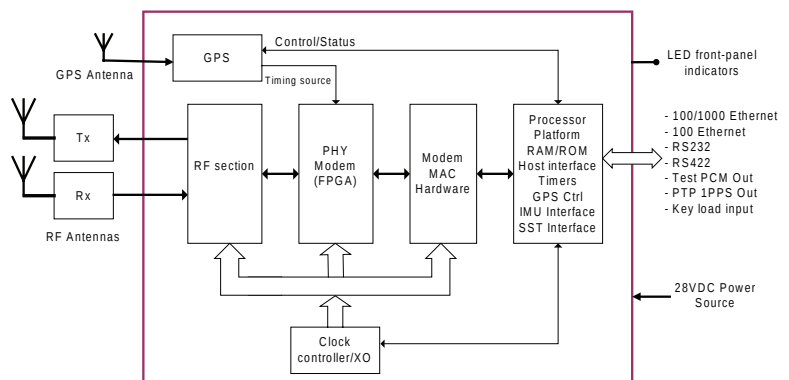
Features

- Wireless communication for use in airborne network applications up to 150 nautical miles
- Compact, lightweight and rugged design is ideal for applications in harsh environments
- iNET compatible and exceeds expected standards for speed, power and waveform compliance
- Flexible data rates: 6 Mbps to 36 Mbps TDMA half-duplex
- Modulation format supported is 802.11a-OFDM with forward error correction
- Transmitter power of 80 W peak
- Supports IEEE 1588-2002 time synchronization for accurate TDMA control
- Compatible with TTC network-based data acquisition and recording systems

Applications

- High speed airborne networks
- Airborne use for wireless communication with ground systems
- Ground use for wireless communication with multiple airborne test articles

nXCVR-2100 Series Block Diagram



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nXCVR-2100 Series Datasheet

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nXCVR-2100 Series – Airborne Wireless Network Transceiver

Technical Specifications

Electrical Specifications

Power input: +28 ± 6 VDC

Supply current: 4 Amp @ 28 V typical

Power consumption: 112 W maximum typical

Grounding: Isolated power, signal grounds and chassis

Serial console port: RS-232 or RS-422 compatible (selectable)

Serial communication port: RS-232 compatible

Differential test ports (2): RS-422 compatible

General purpose (opto-isolated) output current: 50 mA maximum over full temperature range

General purpose (opto-isolated) output isolation voltage: 1500 Vrms

1 PPS output: LVTTTL compatible

Gigabit Ethernet port: IEEE 802.3 compliant

100BASE-T Ethernet port: IEEE 802.3 compliant

Environmental Specifications

Baseplate operating temperature: -40°C to +85°C (NOTE: Baseplate temperature must remain within the stated temperature range. Device must be properly installed with a heat sink)

Storage temperature: -55°C to +100°C

Random vibration: 15 grms, 20 to 2,000 Hz, 10 minutes, any axis

Acceleration: 25 g indefinite duration, any axis

Shock: 15g, half-sine, 11 mS, 6 shocks, any axis

Humidity: 5-95% RH, non-condensing

Altitude: 0 to 70,000 ft. (for up to 200,000 ft. contact TTC)

EMI/EMC: Per MIL-STD-461

Ethernet

Protocols: IP, TCP, UDP, SNMP

Ethernet ports: Two ports: one 100BASE-T, one 100/1000BASE-T, IPv4

Interface type: Electrical (copper wiring)

IEEE 1588-2002 time: Boundary clock

Routing: Static, unicast and multicast routing

Communication: Unicast, broadcast, multicast

Time reference: IEEE 1588-2002 grandmaster, slave or GPS

RF Characteristics

Transmit power: 80 W Peak

Receive power: + 10 dBm (max)

Receiver sensitivity: -82 dBm typical

Center frequencies:

nXCVR-2120A: Tunable from 2200-2300 MHz

nXCVR-2130A: Tunable from 2300-2400 MHz

Center frequency Stability: ±.002%

RF port impedance: 50 Ohms

Dimensions and Mechanical

Size: 6.26" W x 6.60" D x 2.93" H (159 mm x 167.6 mm x 74.4 mm)

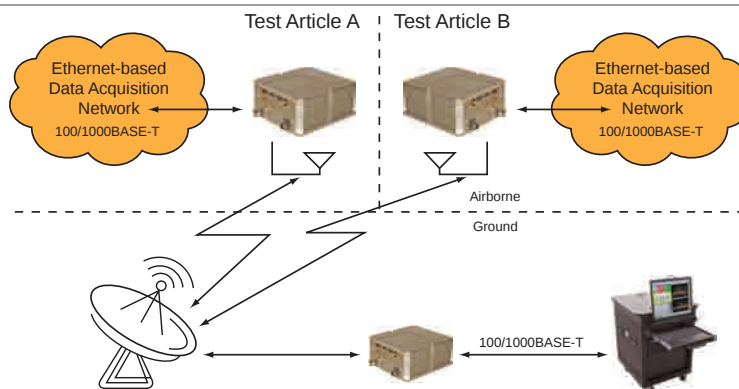
Weight: 6.4 lbs. (2903 g)

Connectors: MDM, SMA, MS and TNC styles

Compliance: MIL-STD-461

Status information: LED1-LED4, various port and system status indicators

nXCVR-2100 Series System Diagram



Ordering Information

Airborne Wireless Network Transceiver-Single port, 2200-2300MHz.....	nXCVR-2120A-1
Airborne Wireless Network Transceiver-Single port, 2300-2400MHz.....	nXCVR-2130A-1
Includes configuration software application (Windows)	No charge

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