

Airborne Telemetry

NTP2000-001 Network to PCM Converter Airborne Data Acquisition Products

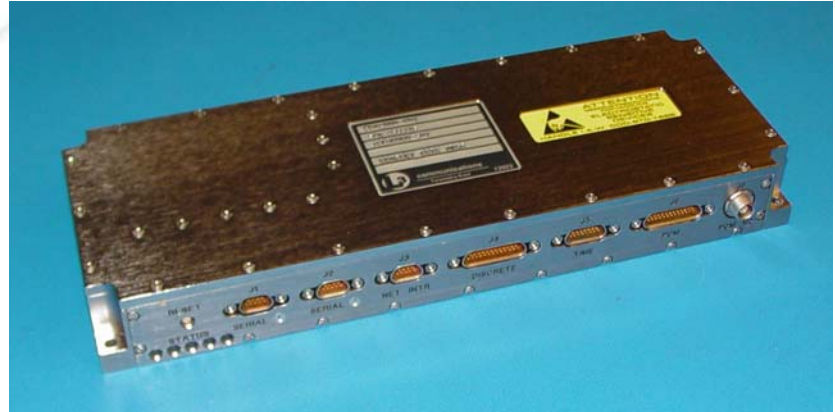
FEATURES

- Automatic Configuration Upload
- Small Size, Light Weight, Low Cost
- Fully Programmable
- Aircraft Applications
- Standard PCM operation to 20 Mbps
- Gigabit Ethernet operation
- System Programming via Vista TEC
- Military Screening and Parts Levels Available
- iNET Compatible



communications
Telemetry & RF Products

Excellence You Can Measure



NTP2000-001

Description

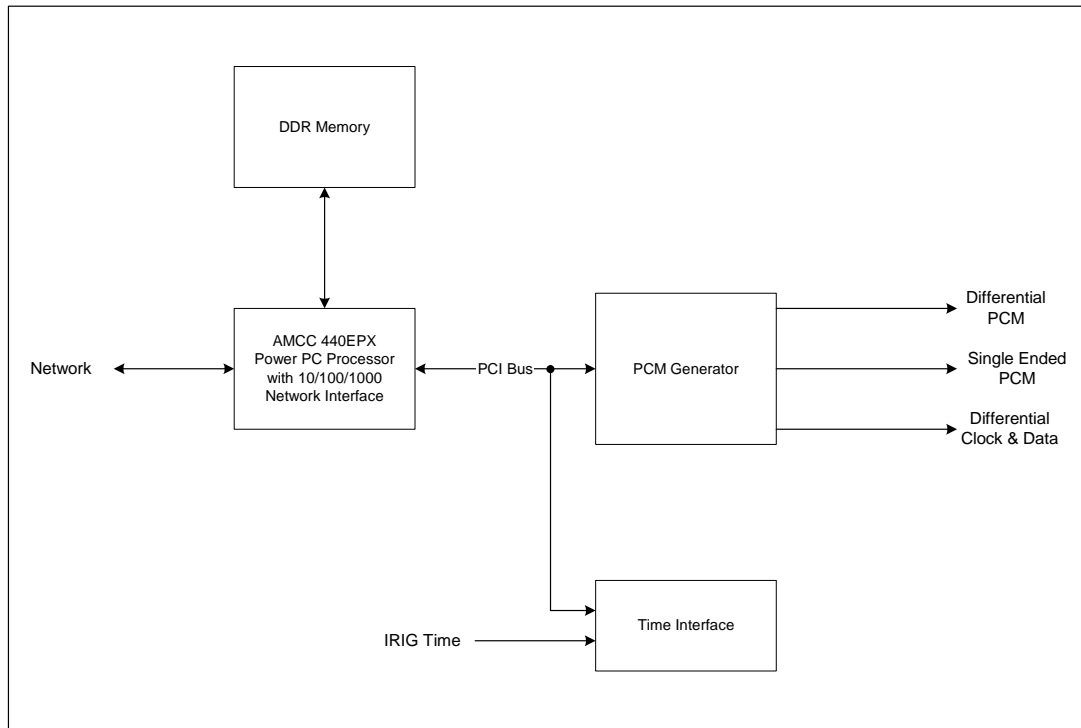
The NTP2000-001 Network PCM Generator (NTP) is a miniature, network-enabled unit that has application in both commercial and flight environments for setup and control of airborne data acquisition systems.

The primary function of the NTP is to collect packets from the network that were generated from the various input sources, select unique parameters as specified by the user, and create the PCM stream for output to either the TM Transmitter or a separate monitoring subsystem.

The NTP processor is a high-performance, highly-integrated AMCC PowerPC that provides Gigabit Ethernet, DDR Memory, and a number of other high-speed interfaces that support the collection and processing of network data, which significantly reduce the amount of processor involvement in data movement, allowing it to focus on the primary application of selecting measurements and building and transferring the final output stream.

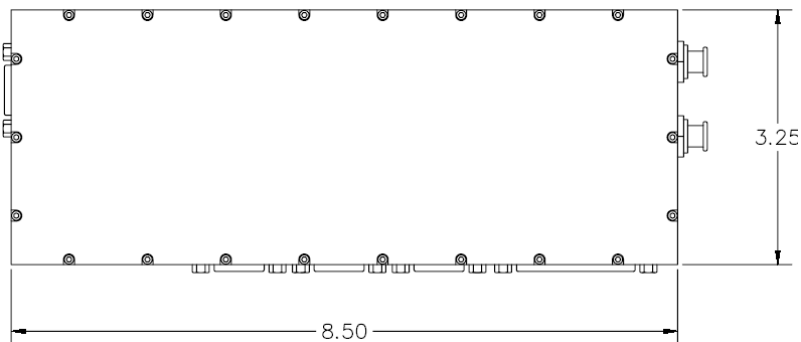
After a frame has been built from the various network data pieces, it is moved via PCI Bus to the PCM Generator Module that is responsible for creating the required output data stream. The standard output module supports up to 20 Mbps (NRZ codes), 10 Mbps (Non-NRZ) and also supplies a programmable randomizer for its filtered output. A separate auxiliary clock and data output is also supplied for other system usages, such as for encryption by a separate external module set.

NTP2000-001 BLOCK DIAGRAM



Physical Description

The general outline drawing of the unit is shown below. The unit supplies a number of connectors and indicators for power, I/O, control and status.



The NTP is based upon a multi-board approach that segregates the general unit control functions from the application specific input or output, resulting in a low profile solution. The NTP employs an embedded AMCC PowerPC processor running Linux, and a separate PCI based module that performs the required I/O function; which in the NTP application would be PCM generation. I/O connectors are located directly on the module for connection to input and output devices.

Programming

The NTP2000 is fully supported by the Vista TEC setup software package, which allows the user to identify the parameters that are to be extracted from the available data packets and build the final composite PCM format.

ENVIRONMENTAL REQUIREMENTS

Technical Description

The NTP is a standalone unit that can support any number of flight or general-purpose control and data acquisition requirements. The unit provides the following physical interfaces:

1. 10/100/1000 Network Interface
 - Used as the host control interface
 - Provide status
 - Collect packets containing data generated by other systems
2. Two (2) serial ports
3. General Purpose I/O lines (TTL)
4. Time Code Interface
5. PCM Output
 - Single ended
 - Differential PCM
 - Differential clock and data
 - Standard IRIG Codes
 - NRZ-L/M/S to 20 Mbps
 - Bi0-L/M/S to 10 Mbps
 - Randomizer

Physical Environment

Temperature

Continuous Operation: -35° C to +75° C

Non-Operation: -40° C to +85° C

Relative Humidity

Continuous Operation: 5% to 95%, with no condensation

Altitude

Continuous Operation: -1,000 ft to +30,000 ft pressure altitude

Sand and Dust

The enclosure is sealed (not hermetically) to prevent the intrusion of foreign particles and liquids as permissible.

Explosive Atmosphere

Operation of the equipment should not cause ignition of an ambient explosive gas mixture, reference MIL-STD-810F, Change Notice 1, Method 511, Procedure I.

Acoustic Noise

The unit is operational at a sustained sound pressure level of 146 dB between the frequency range of 22 to 11,300 Hertz. Reference MIL-STD-810F, Method 515.1, Procedure I.

Vibration

The following vibration environments should not adversely affect equipment operation.

Military Standard	MIL-STD-810F
Method	Method 514.5
Category	Category 9 – Helicopter
Procedure	Procedure I
Equipment Location	General
Source Frequency	30 Hertz
Test Duration	10 Minutes per axis

Shock

The shock environments described below should not adversely affect equipment operation:

Military Standard	MIL-STD-810F
Method	Method 516.5
Procedure	Procedure I - Functional shock
Shock Spectrum	Half Sine
Peak Shock Level	30 G's
Shock Duration	9 milliseconds
Shock Exposure	3 shocks in each of 6 orthogonal axis for a total of 18 shocks.

ENVIRONMENTAL REQUIREMENTS

(Continued)

Electromagnetic interference (EMI)

The NTP is designed using MIL-STD-461E as a guide. These guidelines are referenced to ensure that electromagnetic interference control is considered and incorporated into the design of the NTP2000-001. MIL-STD-461E supersedes MIL-STD-461D and MIL-STD-462D, and contains a detailed description of both EMI requirements and the testing procedures. The specific, applicable, tests are listed in Table 2-1, below.

Requirement	Description
CE 101	Conducted Emissions, Power Leads, 30 Hz to 10 kHz
CE 102	Conducted Emissions, Power Leads, 10 kHz to 10 MHz
CS 101	Conducted Susceptibility, Power leads, 30 Hz to 150 kHz.
CS 114	Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz, Curve 5
CS 115	Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation
CS 116	Conducted Susceptibility, Damped Sinusoidal Transients, Cables and Power Leads, 10 kHz to 100 MHz
RE 101	Radiated Emissions, Magnetic Field, 30 Hz to 100 kHz
RE 102	Radiated Emissions, Electric Field 10 kHz to 18 GHz
RS 101	Radiated Susceptibility, Magnetic Field, 30 Hz to 100 kHz
RS 103	Radiated Susceptibility, Electric Field, 2 MHz to 40 GHz, 100 V/m Peak

Power

Power Environment

The NTP Power Supply conforms to MIL-STD-704E, and provides a single 28VDC connector that allow for use in commercial or flight environments. For lab usages where 115/230VAC power is available, a separate AC-DC adapter cord is also supplied.

www.L-3Com.com/te



L-3 Communications Telemetry-East
1515 Grundy's Lane
Bristol, PA 19007
Tel: 267-545-7000
Fax: 267-545-0100



L-3 Communications Telemetry-West
9020 Balboa Avenue
San Diego, CA 92123-3507
Tel: 858-694-7500, 800-351-8483
Fax: 858-279-0693