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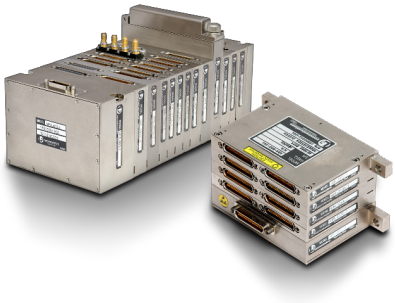
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Find the *L-3 Communications NDS-800-159-1* at our website: *Click HERE*

NETDAS™ SIGNAL CONDITIONING AND ENCODER SYSTEM

L3's NetDAS™ is a state-of-the-art modular, programmable signal conditioning and encoding system.





L3 Telemetry & RF Products' (L3 T&RF) NetDAS™ is a complete Data Acquisition System (DAS) providing comprehensive signal conditioning and encoding functions where size, performance and cost are critical and environmental conditions are severe.

Based on over 40 years of signal conditioning, Pulse-Code Modulation (PCM) encoding and data acquisition experience, L3 T&RF has designed NetDAS to combine the most commonly required functions in a very small, modular package.

A NetDAS unit is constructed from stackable conditioning and overhead modules containing state-of-the-art, high-density, Field-Programmable Gate Array (FPGA) and Digital Signal Processing (DSP) technologies— thereby increasing performance, maintainability and survivability in harsh environments while minimizing size, weight and cost.

FEATURES

- Automatic configuration upload
- High-speed internal digital bus
- Automated calibration via L3's Vista TEC™ software
- 16 selectable formats of up to 256 k words
- Traditional and Ethernet system configurations
- Modular design with integral signal conditioning
- Small size, lightweight, low cost
- Missile, fighter aircraft and civil aircraft applications
- PCM operation to 20 Mbps
- Ethernet operation to 20 Mbps
- Resolution to 16 bits per word
- Accuracy: ± 0.5% standard over complete environments (optional accuracies available)
- System programming via L3's Vista TEC
- Embedded encryption option available (consult L3 factory)

Use of U.S. DoD visual information does not imply or constitute DoD endorsement.

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NETDAS™ SIGNAL CONDITIONING AND ENCODER SYSTEM

OVERVIEW

PCM ENCODER

NetDAS' modular architecture can be configured to meet the exact needs of any flight test program, allowing the user to field-reconfigure the unit for changing mission requirements. L-3 T&RF's Vista TEC™ Graphical User Interface (GUI) software provides easy-to-use programmability of gains, offsets, filter cutoffs and channel sampling rates.

NetDAS and its library of data input modules are the functional building blocks of a distributed data acquisition system operating in standalone, master/slave or networked configurations.

In addition to configurations implemented using NetDAS alone, NetDAS may be integrated with L-3 T&RF's heritage data acquisition systems in large system configurations. This allows installation of slave encoders in closer proximity to the sensors, providing enhanced performance and reduced cabling requirements.

SIGNAL CONDITIONING

NetDAS meets the challenge of today's market-place by offering a complete family of signal conditioning modules to accept inputs from sensors and subsystems. Both analog and digital signal conditioning modules are available for virtually any sensor.

The types and features of these conditioners are continuously expanding as new modules are developed. Please consult the L-3 factory for a complete list of currently available modules. Custom modules can be created for unique measurement requirements.

In addition to data collection, NetDAS can stream PCM or network data, or store data in on-board removable flash memory.

CONTROL/ POWER MODULES	
NDC-810	Controller
NDC-820	Controller
NPS-803	Power supply (NPS-802 also available)
NET-810B	Network interface
REMOTE DAS INTERFACE MODULES	
CBI-810	Master remote interface
NIC-801	Intellibus interface controller
NPM-2101	PCM merge, 1 channel
NMC-801	NetDAS to NetDAS or legacy DAS interface
ANALOG SIGNAL CONDITIONING MODULES	
NAM-1232	32-channel, single-ended analog multiplexer
NAM-2216	16-channel, differential analog signal conditioner
NAM-2232	32-channel, differential analog signal conditioner
NCC-2908	8-channel current conditioner (not recommended for new designs)
NCC-2916	16-channel current conditioner
NRT-2124	24-channel Resistive Temperature Detector (RTD) interface
NSG-2916	16-channel, strain gauge interface
NSR-2104	4-channel, synchro/resolver interface
NTC-2116	16-channel, thermocouple interface
NVC-2908	8-channel voltage conditioner (not recommended for new designs)
NVC-2916	16-channel voltage conditioner
BUS MONITOR MODULES	
NBM-1553	MIL-STD-1553B bus monitor
NBM-A429	ARINC-429, 16 dual-channel bus monitor
NBM-A664	ARINC-664, bus monitor
NBM-E802	E-802.2-Channel Ethernet bus monitor
NBM-HSDB	Garmin™ High-Speed Data Bus (HSDB) monitor
DIGITAL SIGNALING CONDITIONING MODULES	
NDM-1132	32-channel, isolated discrete-signal conditioner
NDM-1264	64-channel, discrete-signal conditioner
NFP-3104	Frequency/period counter
NGS-2104, NMC-801, NSD-2410	Serial Interface Module
NSI-3101	DTC and ESP-64 DTC pressure scanner interface
NPX-801	16 to 1 PCM multiplexer
RECORDER/VIDEO MODULES	
NRM-801	Data storage [controller + media module(s)]
NVJ-2101	JPEG 2000 video input/compression
RECORDER/VIDEO MODULES	
Embedded encryption available — consult L-3 factory	

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NETDAS™ SIGNAL CONDITIONING AND ENCODER SYSTEM

STANDARD SYSTEM FEATURES

- High-Speed Serial Bus: For local DAU data acquisition and programming
  - Low-Voltage Differential Signaling (LVDS)
  - 133 Mbps operation
- Excitation: Provides constant voltage and current; multiplexed, constant current excitation required by various sensor modules

TRADITIONAL PCM SYSTEM FEATURES

- Master NetDAS Stack: Can receive data from remote NetDAS stacks on up to 4 remote busses
  - Up to 5 Mbps operation per remote bus
  - Up to 28 remote NetDAS stacks can be used through daisy-chain configurations
- Continuous-Tuned, Primary Bit-Rate Generator (10 bps to 20 Mbps)
  - Numerically-controlled oscillator
- Time Code Processor
  - IRIG A, B, G
  - AC or DC inputs
  - External tick events
- Formatter
  - Selectable 1 of 16 active formats
- Class I IRIG-106
  - Dynamic switching
    - --Programmable switch time: Minor frame, major frame, immediate
    - --Entire format
    - --Commutator list only
  - Instruction memory
    - --1 MB instruction synchronous SRAM
    - --4 bytes per instruction: Single-format, maximum of 256 k words
- 32-bit RISC Microcontroller
  - 2 UARTs (COM1 and COM2)
  - 16 MB, SDR synchronous DRAM
  - 16 MB, program/parameter FLASH
- PCM Code Generator
  - Independent outputs: 1 filtered and 2 auxiliary
  - Selectable codes: NRZ-L,M,S; RNRZ-L;
  - BiØ-L,M,S; MDM-M,S; DM-M, S
  - Programmable randomizer
  - Bipolar output: Filtered (data)
  - Programmable gain and offset
  - RS-422 differential outputs: Auxiliary (clock and data)
- Bit Rate Tracking PCM Pre-Modulation Filter
- Synchronized Integration: Specific modules allow integration of external NetDAS stacks not configured as traditional slaves, L-3 TE IntelliBus DAS and legacy DAS
- Smart Track Splitting
  - Data routed to any output selectable on a word by word basis

NETWORK MODULE

- Provides operation up to 20 Mbps
- IEEE-1588 Synchronized Data Acquisition
- iNET Compliant

NETDAS PROGRAMMING SOFTWARE

NetDAS programming and system configuration management is available through the use of Vista TEC, which includes the following programmable functions:

- Measurement definition management
- Calibration analysis
- Automatic telemetry frame format population
- Relational database
- Airborne hardware setup
- Ground hardware setup and control: Ground systems and telemetry receivers
- Project manager
- Alarm detection and event reporting and logging
- Real-time data archiving
- Real-time algorithm processing
- Software packet and frame decommutator
- Real-time data displays
- Data distribution
- Avionics bus management
- Applications programming interface (API / SDK)
- Post-processing application (e.g., Matlab) interface
- Operational checkout
- IADS®, Dewesoft™ and Vista JADE™ interfaces

Vista TEC is compatible with Windows® and Linux® platforms.

POWER SUPPLY & EXCITATION (MIL-STD-704)

Input Voltage	28 VDC (accepts 20 to 40 VDC)
Max Output Power	Up to 115 W
Reverse Polarity	-40 VDC, indefinitely
Output Logic Supply	+3.3 VDC, 26.4 W max
Output Analog Supply	± 15 VDC, 60 W max
Output Excitation Supply	± 7 VDC, 28 W max

ENVIRONMENTAL CONDITIONS (MIL-STD-810D)

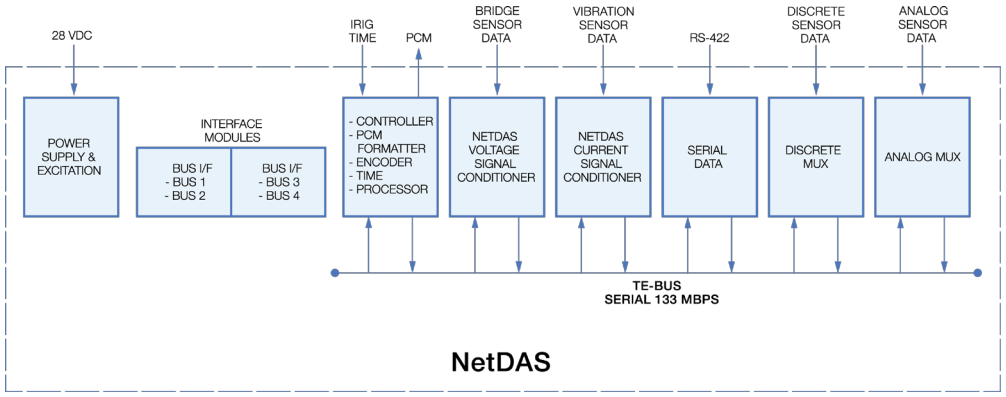
Temperature baseplate	
Operating	-40 °C to +85 °C
Non-Operating	-55 °C to +100 °C
Humidity	to 95 % non-condensing
EMI	MIL-STD-461, MIL-STD-462

NetDAS systems have been operated successfully in missile, fighter aircraft (rotor and fixed wing) and civil aircraft application environments. The system has been qualified for various vibration, shock and acceleration profiles. Please consult the factory with specific requirements for evaluation.

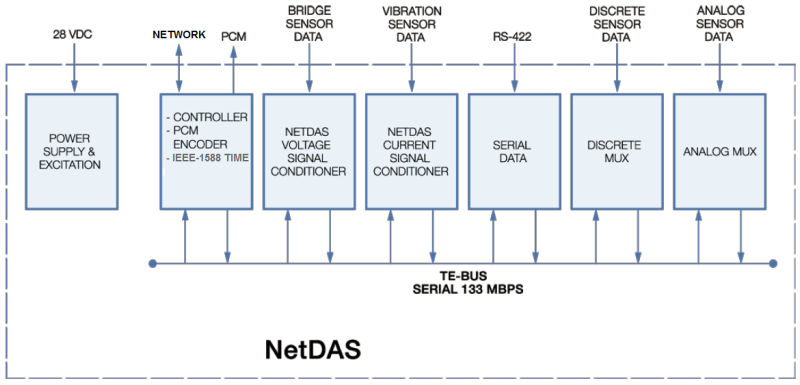
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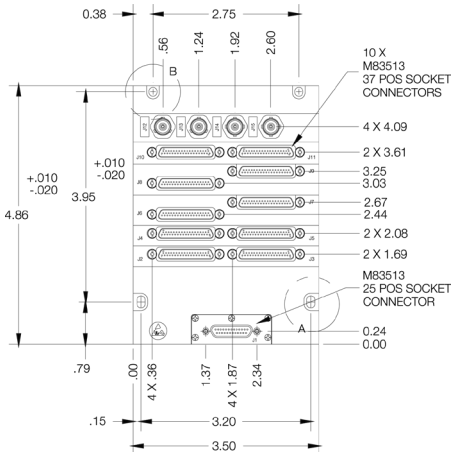
NETDAS PCM BLOCK DIAGRAM



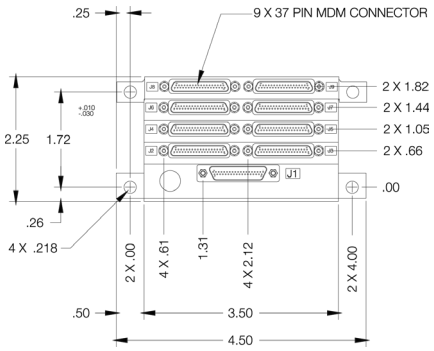
NETDAS NETWORKED BLOCK DIAGRAM



EXAMPLE NETDAS MECHANICAL OUTLINE - LARGE STACK/THRU-HOLE MOUNT (IN INCHES)



EXAMPLE NETDAS MECHANICAL OUTLINE - SMALL STACK/TAB MOUNT (IN INCHES)



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