ARKA

nDAQ CHASSIS

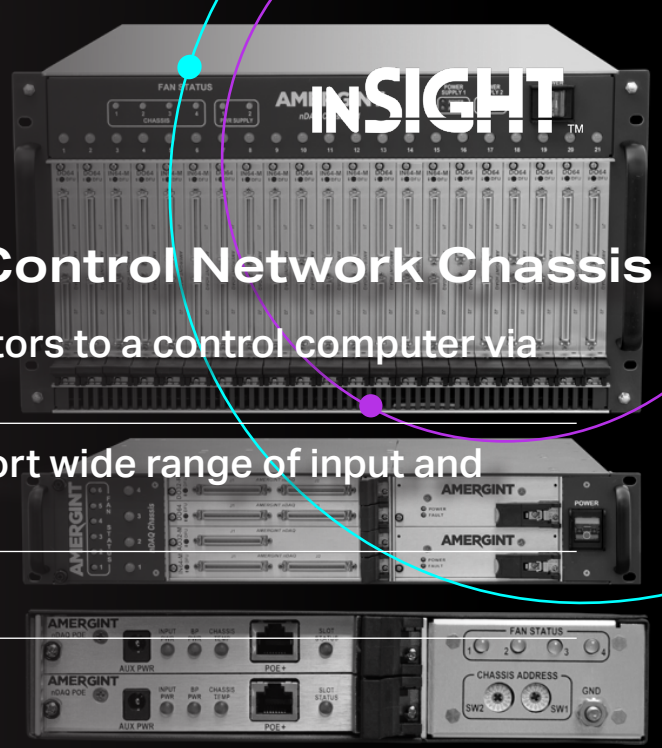## Network Data Aquisition and Control Network Chassis

Connects remote sensors, relays, and actuators to a control computer via an Ethernet network

Software-configurable nDAQ Modules support wide range of input and output channel types

Available in 2-,4-, or 21-slot chassis

PoE (Power over Ethernet) Capable

FEATURES

CAPABILITES:

The nDAQ Chassis hosts software-configurable data acquisition modules (nDAQ Modules) and application software that enable test and ground support equipment to control and monitor 1 to 1000s of channels and data streams.

nDAQ MODULES:

The software-configurable nDAQ Modules connect remote sensors, relays, actuators, and other discrete signals to a control computer via an Ethernet network. nDAQ modules have 8, 32, or 64 channels and can be delivered in a 2-, 4-, or 21-slot chassis.

VARIETY OF INPUT/OUTPUT CHANNEL TYPES:

nDAQ Modules support a wide range of input and output channel types. nDAQ input modules consolidate the readings from all channels into Ethernet data packets at configurable rates up to 2 mega samples per second (Msps). nDAQ output modules work in reverse, allowing customers to send control signals to the channel outputs.

MODULES OPERATE INDEPENDENTLY:

Each nDAQ Module operates fully independent of the others. Each has a dedicated 1000BASE-T IEEE 802.3 compliant Ethernet port and onboard processing to process the Ethernet packets and sample or set the external interfaces.

VOLTAGES:

Input voltages can be measured and reported as an analog signal, or converted to a discrete High|Low reading by the input module. Controls and actuators can be driven by analog voltage or current outputs, discrete outputs, or relay modules.

CORE LOGIC:

nDAQ Modules combine the module specific hardware with core logic that is common across all modules. This core logic handles the Ethernet packet processing and general provisioning. Capitalizing on this commonality, modules can be extended to meet custom requirements by combining new external logic with the core logic to quickly create a new module.

CHASSIS CONFIGURATIONS:

The 21-slot nDAQ chassis is a 6U chassis that provides high channel density for applications with high channel counts. The chassis contains two 500W power supplies that normally load-share, but operate in a redundant fashion if one supply fails. The 4-slot nDAQ chassis is a 2U chassis that provides medium channel density in a small form factor. The chassis contains two 300W hot-swap power supplies that normally load-share, but operate in a redundant fashion if one supply fails. The 2-slot PoE chassis can be mounted on a desktop, in environmental enclosures or can be used in a rack-mounted configuration.

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Launching rockets and vehicles is a complex and high-risk endeavor. nDAQ systems provide valuable information about the vehicle's systems and components, allowing engineers to identify potential safety risks and take appropriate measures to mitigate them. By continuously monitoring critical parameters, any deviations or abnormalities can be detected early, enabling timely intervention to prevent accidents or failures.
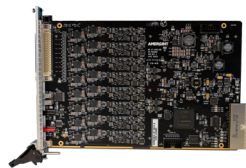
nDAQ MODULE HARDWARE LOGIC

An FPGA functions as a flexible core, interfacing to the other logic. An embedded processor runs on the FPGA. Onboard flash memory stores the FPGA and processor firmware images.
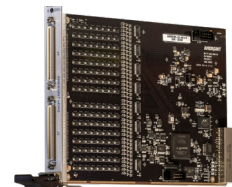
User I/O is accessed from the module's front panel connectors. The rear of the module plugs into a backplane with a 2mm Type A connector. The backplane provides the Gigabit Ethernet interface, the I2C interface, addressing and power. All nDAQ modules are hot-swappable.

AVAILABLE nDAQ MODULES

- **IN8:** 8 independent input channels, with a configurable input voltage range for each channel sampled up to 2 Msps.
- **IN64-M:** 64 multiplexed input channels, with a configurable input voltage range for each channel.
- **DO32-R:** 32 channel relay outputs, with "normally open," "normally closed," and "common" terminals for each channel.
- **AO32-M:** 32 analog output channels, each channel can operate in voltage or current mode.
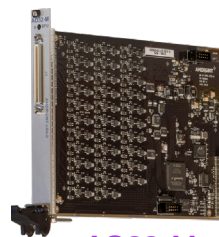- **DO64:** 64 channels of opto-isolated transistor outputs.

IN8

IN64-M

DO32-R

AO32-M

DO64

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