Axon Data Acquisition Unit (DAU) Product Family

For airborne applications where reliability and size, weight, and power (SWaP) are critical, the Curtiss-Wright Axon family of data acquisition units (DAU) are ready to take flight. Designed leveraging our decades of experience as a trusted, proven leader, Axon DAUs are future-proof, SWaP-optimized, and available in a variety of flexible configurations to meet your exact program requirements.

Key Features

+ High data throughput (up to 380 Mbps per DAU) and dedicated high-speed link to each user module
+ Compact and flexible configurations, including remotely mounted modules, for simplified installation
+ Designed from the ground up for harsh environments for reliable operation in all conditions
+ Multiple modern time- and cost-saving functions, such as in-situ updating, faster pre-flight checks, and system health monitoring
+ High data quality and filtering options, including three output taps per channel on all analog modules and choice of 10 different filter cutoff points (using FIR / IIR8 / IIR16 filtering)
+ Single 15V backplane power rail for improved efficiency
+ Support for multiple industry standard formats

Axon Architecture

The Axon consists of a chassis with an integral power supply (100W on 16U and 9U, 50W on 6U and 3U), a high-speed backplane for internal data transmission, a chassis controller (bus control unit), and user modules. There are many existing user modules that can be selected, and these can be placed into the chassis in any configuration.

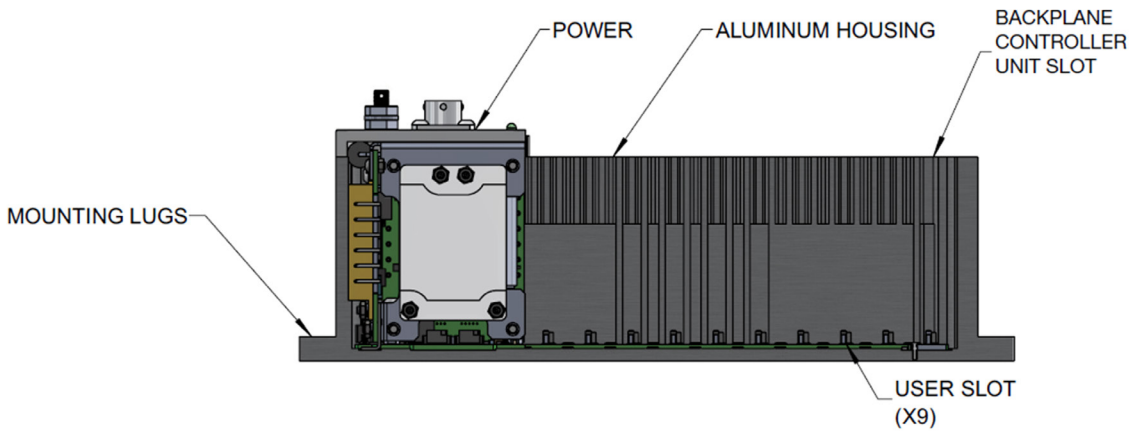


Figure 1: Axon DAUs consist of a chassis, power supply, controller, and user-selected modules

Axon User Modules

Examples of released user module types:

+ Analog voltage
+ Strain gauge
+ Potentiometer
+ Thermocouple
+ Resistive temperature devices
+ Accelerometer
+ Discrete
+ MIL-STD-1553 bus
+ Serial, RS-232/422/485
+ ARINC-429
+ IRIG-106 Ch4 PCM
+ Power monitor

Modules in development at time of publication:

+ GPS/IRIG Time Sync
+ Video
+ CANBUS
+ Pressure
+ IRIG-106 Ch7 PCM
+ Recorder
+ ICP
+ PCM merger
+ Others

To find the most up-to-date list of standard modules, please visit curtisswrightds.com/axon.

These modules are available on a short lead time. Due to the flexible nature of the design, additional modules can be quickly added to available space in the chassis.

The Axon bus control unit (BCU) can output data as Ethernet in iNET-X, IENA & Ch10 UDP formats. This data can be stored on an external recorder, transmitted via wireless or radio link or else processed by an onboard computer. The BCU also can act as an IEEE-1588 time code grandmaster or can synchronize to external GPS time with the aid of a time-code user module.

The Axon can be used as a stand-alone unit or several Axon & KAM-500s can be connected and operate as a complex synchronized system.

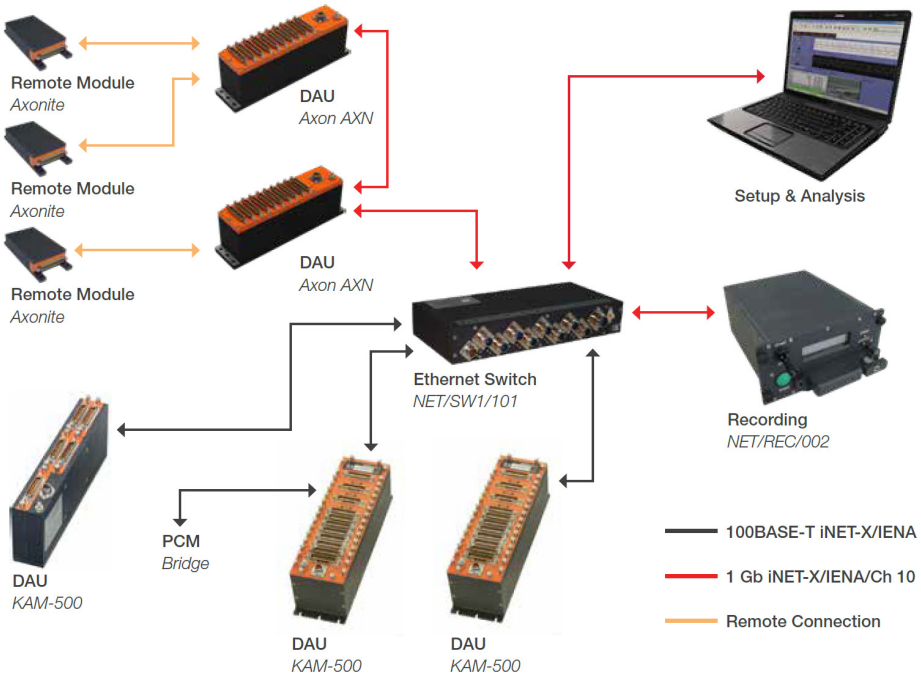
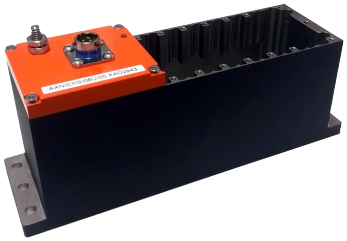


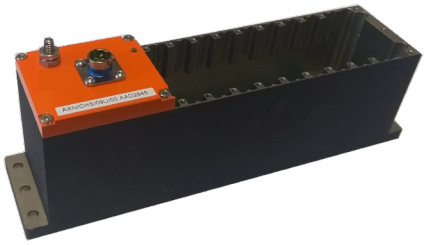
Figure 2: Axon and Acra KAM-500 systems can be integrated seamlessly

Standard Chassis Options

AXN/CHS/03U



AXN/CHS/06U



AXN/CHS/09U

AXN/CHS/16U

Axonite

	AXN/CHS/03U	AXN/CHS/06U	AXN/CHS/09U	AXN/CHS/16U	AXN/ITE/01U
User Slots	3	6	9	16	1
Dimensions	3.5 x 2.2 x 6.0” 88 x 55 x 151 mm	3.5 x 2.2 x 7.6” 88 x 55 x 193 mm	3.5 x 2.2 x 9.3” 88 x 55 x 235 mm	3.5 x 2.2 x 13.1” 88 x 55 x 333 mm	0.9 x 2.2 x 4.6” 22.5 x 55 x 118 mm
Mass*	1.26 lb 0.57 kg	1.37 lb 0.62 kg	1.76 lb 0.80 kg	2.20 lb 1.00 kg	0.33 lb 0.15 kg

*For a typical chassis, no user modules

The Axon SWaP Advantage

Size, weight, and power are key considerations when selecting a data acquisition system for your flight test program. Axon was developed to optimize SWaP without sacrificing flexibility or performance. Axon chassis are approximately 40% lighter (fully loaded) and have a volume 35% lower than the equivalent KAM-500 chassis.

Axon uses a single 15V power rail on the backplane, with up to 100W integrated power supplies, allowing for a high concentration of excitation channels in the same chassis. Up to 132 channels of strain can be captured in a single chassis (11 AXN/ADC/404 modules) with care taken to ensure adequate heat dissipation at high loads.

Environmental Qualification

The Axon product range has been qualified to MIL-STD-810, MIL_STD-461, and DO-160. Typical categories include

+ Temperature
+ Altitude
+ Vibration
+ Shock
+ Humidity
+ RF emissions
+ RF susceptibility
+ Indirect lightning
+ Power input
+ Voltage spikes

A full list can be found in the Axon Environment Handbook.

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