

NC120A

Next Generation Nano Motion Controller

**CURTISS-
WRIGHT**

CURTISSWRIGHTDS.COM



Key Features

- High power, SWaP-C optimized motion controller (up to 3.4 kW)
- Field-proven, rugged and reliable design
- Ultra-low latency motion control and stabilization
- Modular open standard architecture electronics
- High-speed communication interfaces
- UI for parameterization and software configuration
- Separated safety paths in electronics and software (up to SIL 2)
- Available in MIL-STD qualified housing or as a modular integration package
- Control one axes per controller; up to three axes simultaneously
- Passive cooling (convection)

Applications

- Remote weapon stations
- Ammunition loader
- Missile launcher drive system
- Mortar drive system
- Small-size, integrated drive system
- General-purpose motion control

Overview

Curtiss-Wright's next-generation nano controller combines compact and rugged design with the latest motion control technology. The NC120A enables fast, precise motion control and stabilization for SWaP-C constrained and mobile platforms requiring high performance and reliability.

Each NC120A provides high-speed and low-latency RS-422/RS-485 and CAN interfaces, digital inputs and outputs, and optional Gigabit Ethernet or USB interfaces with standard protocols. Enabling a seamless integration into different architectures and environments – from legacy systems to new developments and open architectures (GVA, VICTORY).

Curtiss-Wright's line of modular motion controllers is designed for use in applications with demanding dynamic and precision positioning requirements. They are equipped with the latest SoC and FPGA technology and can be easily modified to your specification. The NC120A is a scalable solution and allows the control of up to three axes by employing three controllers.

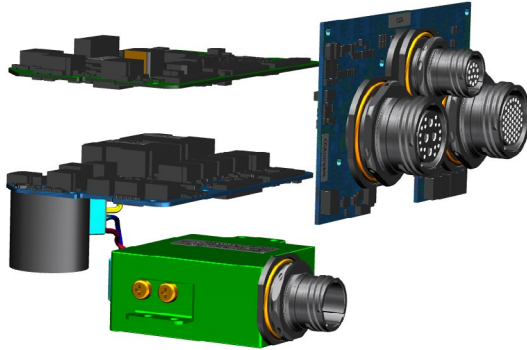
In addition, the NC120A complies with functional safety requirements and in accordance with international standards. The standard setup includes a SIL 2 emergency stop, safe torque off, safe brake control¹, and safe position¹.

To accelerate system development and integration, Curtiss-Wright motion controllers come with a user-friendly service application. The graphical user interface allows users and integrators to easily configure, optimize and integrate our motion controllers with a few clicks. The NC120A comes with an available power-over-USB option that enables service and maintenance functionality via a USB interface.

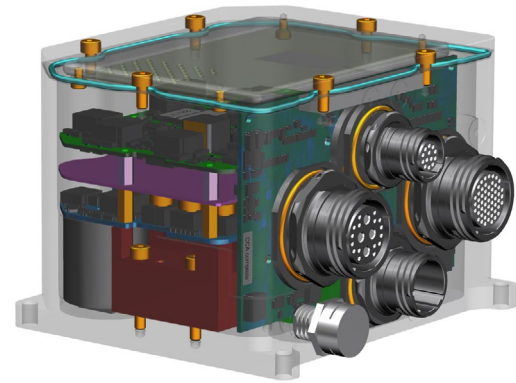
The NC120A is available as a simple motion controller with a single communication interface, as a stand-alone motion controller with a customer and service interface, or as motion control and stabilization controller with additional gyroscope interfaces and multi-axis control functionality. In addition, all variants can be shipped with housing and optional water cooling or as a modular PCB integration package.

All components are designed and tested to withstand the most demanding of environmental requirements (e.g., temperature, vibration, shock) and with a focus to maximize mission life. The modular integration package allows for the opportunity to directly integrate PCBs into mechanical structures, whereas the complete package, with housing, has the advantage of meeting EMC/EMI requirements.

Designed for superior durability and reliability, the NC120A brings Curtiss-Wright's leading hardware design and validation practices to meet the stringent requirements of the most demanding front-line environments.



Modular integration package (qualified PCBs)



Fully qualified controller

Figure 1: NC120A product configuration options

Specifications

Physical

- Dimension:
 - + 5.4 x 5.3 x 3.8 in (138 x 135 x 97 mm)
 - + 5.4 x 5.3 x 4.6 in (138 x 135 x 116 mm) with water cooling
- Weight:
 - + ~4.2 lbs (1.9 kg), fully qualified controller with housing
 - + ~5.3 lbs (2.4 kg), fully qualified controller with housing and water cooling

Features

- Built-in Test (PBIT, CBIT, IBIT)
- Voltage and temperature protection
- Input current measurement
- Galvanic isolation
- Inrush current limitation
- Transient voltage and overvoltage protection
- USB service interface

Interfaces

- Digital inputs/outputs: 6/4
- Analog inputs/outputs: optional
- Customer interface: RS-422/RS-485, CAN, GVA Gigabit Ethernet
- Gyroscope interface: RS-422/RS-485 Synchronous and Asynchronous
- Hand controller interface: RS-422/RS-485, CAN or Analog
- MFB interface: Encoder or Resolver (e.g. BiSS, Hiperface, SCS, Analog) Brake interface (voltage/current control)

- Service interface: RS-422 or USB
- Brake interface: voltage / current control

Functional Safety

- Safety Loop/Emergency Stop: ISO 61508 SIL 2
- Safe Torque Off: STO, ISO 61800 SIL 2
- Safe Brake Control (requires fail-safe brake and safe motor-feedback system): SBC, ISO 61800 SIL 2
- Safe Stop 1 Ramp Monitored: SS1-r, ISO 61800 SIL 2
- Safe Position Detection (requires fail-safe brake and safe motor-feedback system): ISO 61508 SIL 2
- Safety Override: IEC 61508 SIL 2

Qualifications

- Power Supply: MIL-STD-1275: 18 to 32 VDC
- EMI/EMC: MIL-STD-461
- Environmental: MIL-STD-810
- Motor Phase Continuous/Peak Current: 40 A/120 A
- MTBF (on request): MIL-HDBK-217 FN2, NPRD-2016
- Temperature
 - + Operating (MIL-STD-810): -40 to +62°C (-40 to +144°F)
 - + Storage: -46 to +71°C (-51 to +160°F)

Ordering Information

Contact [Curtiss-Wright](https://www.curtisswright.com) for ordering information.