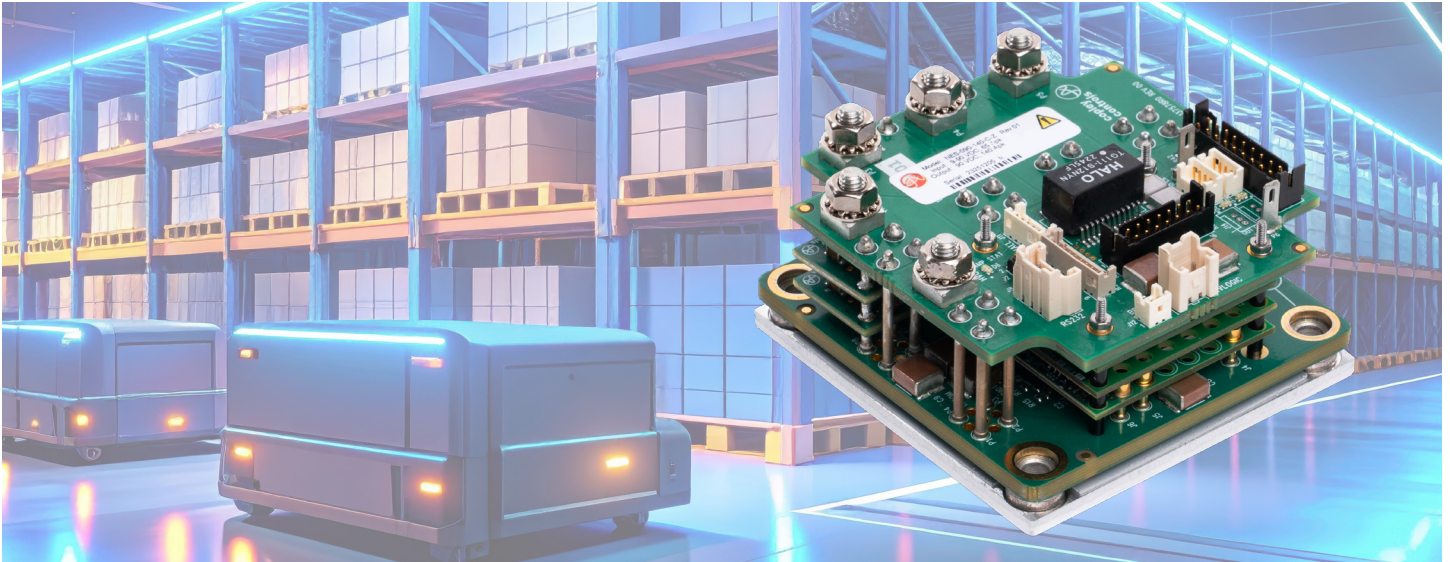




THE NANO HP & PLUS-HP SERIES

High-Power Servo Drives For Brush and Brushless Motors

Expanding on Copley Controls' compact Nano servo drive technology, we offer two high-power versions for mobile robotics applications: the Nano High Power (HP) and Nano^{Plus} High Power (Plus-HP). Both drives leverage our existing platforms coupled with a power board capable of delivering 140A continuous current.

The Nano HP is based on our Nano Standard platform with ARM processor, while the Nano Plus-HP is built on our advanced Nano Plus platform featuring FPGA-based architecture. The FPGA supports enhanced functionalities, such as additional networking protocols, advanced encoder interface options and higher A/D resolution.

Both high-power versions support wide input voltage ranges for maximum battery flexibility and deliver exceptional power density in a compact form factor, serving as an ideal solution for autonomous mobile robots (AMR) and guided vehicles (AGV) and other space-constrained robotic systems requiring high-power embedded solutions.

EXCEPTIONAL POWER DENSITY

- 140A continuous current
- 9-90V DC input voltage range
- Up to 12.6kW peak output power

ADVANCED CONTROL PERFORMANCE

- 16-kHz current loop update rate
- 4-kHz position and velocity loop update
- Frequency analysis tools for system optimization and diagnostics
- 32-bit floating point filters with multiple advanced filtering options
- Regenerative braking: configure drive outputs to control external relays based on DC bus voltage thresholds, automatically switching energy dissipation circuits to prevent overvoltage during motor deceleration

COMPREHENSIVE CONNECTIVITY AND I/O

- Many communications protocols:
 - Nano HP: EtherCAT and CANopen
 - Nano Plus-HP: EtherCAT and CANopen — plus Ethernet, UDP, TCP-IP, Modbus-TCP, Ethernet/IP and RS-232
- 5 high-speed digital inputs
- 4 high-speed digital outputs including brake control
- $\pm 10V$ analog input with 12-bit resolution (HP) and 16-bit resolution (Plus-HP)
- RS-232 serial communication for configuration
- Multiple feedback options:
 - Nano HP: Incremental and absolute (BiSS-C) encoders
 - Nano Plus-HP: All Nano HP types plus additional absolute encoders and dual-loop absolute encoders (primary/secondary)

SAFETY AND RELIABILITY

- Safe Torque Off (STO) with SIL 3, Category 3, PLe certification
- Protection: overvoltage, undervoltage, over-temperature, short circuit
- Motor over-temperature monitoring
- I²T current limiting with programmable parameters
- HALT and Life (MTBF) tested to ensure proven reliability and validated performance over millions of operating hours

VERSATILE CONTROL MODES

The Nano HP series supports multiple advanced control modes to meet diverse application requirements, including Cyclic Synchronous Position-Velocity-Torque (CSP, CSV, CST), Profile Position-Velocity-Torque, Interpolated Position, Homing, Indexer, Point-to-Point, PVT, Camming and Gearing.

CONFIGURATION OPTIONS

STANDARD MODULE (NES-HP / NEP-HP)

- Weight: 5.64 oz (160 g) NES-HP / 5.8 oz (164 g) NEP-HP
- Dimensions: 1.3 x 2.6 x 2.5 inches (31.7 x 66 x 63.5 mm)
- Connection: Connectors or pins for installation into customer-designed circuit board

Z-STYLE MODULE (NES-HP-Z / NEP-HP-Z)

- Weight: 6.38 oz (181 g) NES-HP-Z / 7.6 oz (215 g) NEP-HP-Z
- Dimensions: 1.44 x 2.6 x 2.5 inches (36.5 x 66 x 63.5 mm)
- Connection: Factory-installed EZ board with industry-standard connectors

INDUSTRY APPLICATIONS

- Mobile robotics
- AGVs and AMRs
- Field robotics
- Warehouse automation

VISIT [COPLEYCONTROLS.COM](https://www.copleycontrols.com) TO LEARN MORE