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MOTION CONTROLLERS **NSERVO**



A3200 Nservo

Nservo is a digital 2- or 4-axis (position and velocity) servo controller, with up to 20 kHz sample time. It is compatible with encoders and provides a ±10 VDC three-phase command to any amplifier. With 11 digital inputs, 8 digital outputs, 4 analog inputs, 2 analog outputs (in addition to the 8 analog outputs that drive the amplifier), and expandable I/O, Nservo will accommodate most system I/O requirements. As with the Ndrive series, only a single 4-wire cable is needed to communicate with the motion generator on the PC. Other features include limits, E-Stop, brake, auxiliary feedback input, high-speed latching inputs, and Ethernet.

Aerotech's Nservo complements the Automation 3200 system's digital drives, allowing an industry standard analog amplifiers to interface with Aerotech's digital drive network. Connected via the IEEE-1394 (FireWire®) communication bus, which provides deterministic behavior, auto-identification, and easy software setup from the A3200 software-based machine controller.

NServo Features

- Supports 2 (standard) or 4 closed-loop servo (position and velocity) axes
- Each axis has three-phase ±10 volt outputs. Two outputs are driven directly by DACs and the third output will be a summation of the first two outputs to provide third phase generation for commutated motors
- Up to 5 channels of 32 MHz line driver quadrature encoder inputs
- 24-volt tolerant opto-isolated CW, CCW, home and drive fault inputs per axis powered by either an internal 5V or external power supply
- 24-volt tolerant drive enable output per axis (open collector transistor, single ended, polarity selectable)
- 11 digital inputs (8 optically isolated)
- 8 opto-isolated digital outputs (sinking and sourcing; 5-24V)
- Four 16-bit analog inputs; 2 are differential with x1, x2.5, x4, x10 input gains
- Two 16-bit analog outputs
- Opto-isolated PSO output (opto-coupled, open collector, differential)

PRODUCT HIGHLIGHTS

Supports 2 (standard) or 4 closed-loop servo axes

Each axis has three-phase ±10 volt outputs to drive any amplifier

FireWire® enabled servo controller for simplified wiring

Software configurable for brush, brushless and stepper motor operation

Encoder feedback accepted

Connector options include terminal block and D connector

CE approved; follows the 2011/65/EU RoHS 2 Directive

- All I/O connections via easily removable connectors
- Two FireWire® ports
- Dedicated Emergency Stop sense input standard
- Internal power supply
- Equivalent software functionality (less current loop support) to the NDrive, NPaq, etc
- Software configurable for brush, brushless, and stepper motor operation
- 5 VDC, 500 mA user output power for encoder, limits, etc.
- Fail safe brake control output (open collector)
- Four auxiliary (U500/U600 compatible) open collector mode outputs
- High-Speed position latching input
- 48 bits of programmable I/O, user definable as input/output by byte
- Expansion connector for a four-axis R/D feedback module
- Optional Ethernet port
- CE approved, NRTL safety certification, EU 2015/863 RoHS 3 directive

Nservo **SPECIFICATIONS**

Nservo-DB2 (Standard)/-DB4 Hardware

FRONT VIEW



AC Input

J101, J102 FireWire® Option

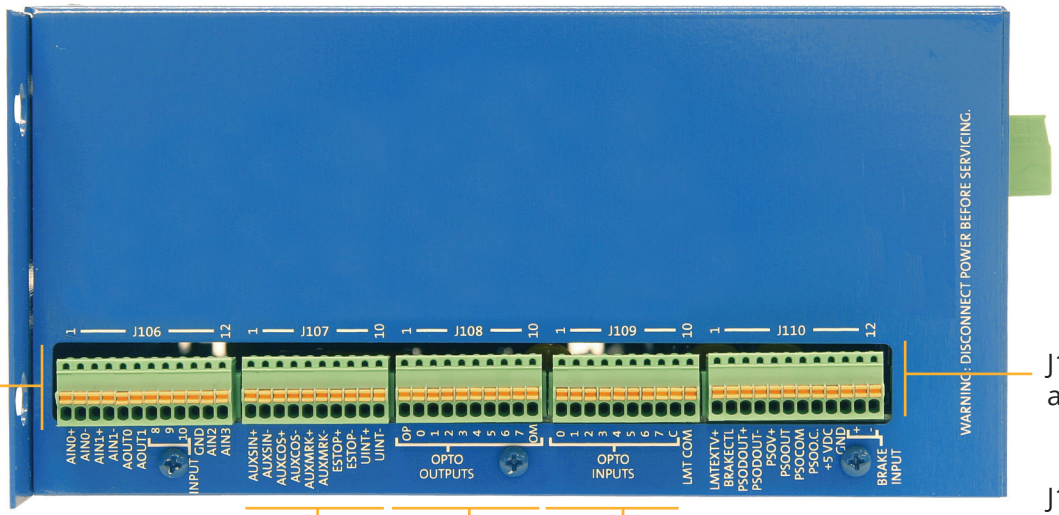
Axis 3,4 (-DB4 Option)

Axis 1,2 (-DB2 Option)

J103 Ethernet Option

Status LEDs

LEFT SIDE VIEW



J106 Analog I/O

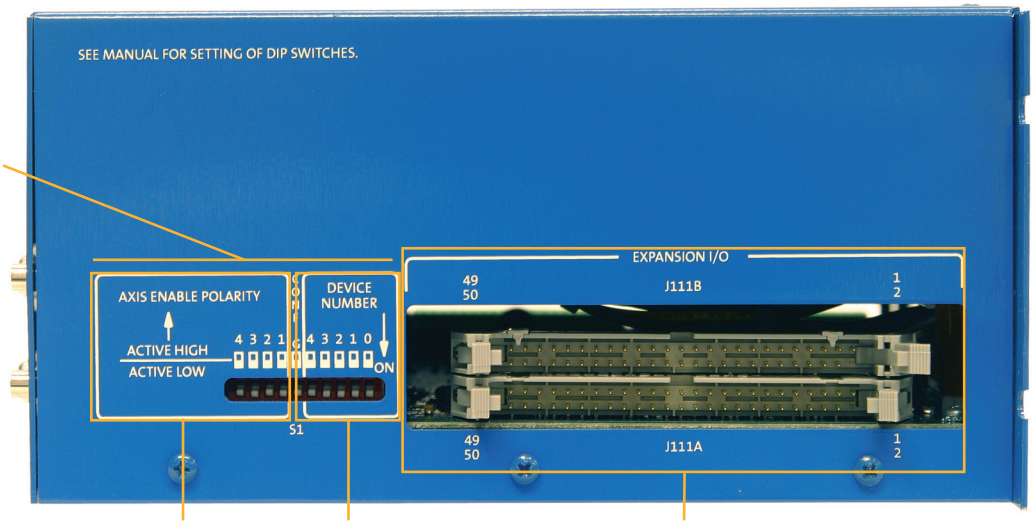
J107 Estop and Extra Encoder Channel

J110 PSO and Brake

J108; 8 Opto Outputs

J109; 8 Opto Inputs

RIGHT SIDE VIEW



S1 Switch

Amplifier Enable, Active State Selection

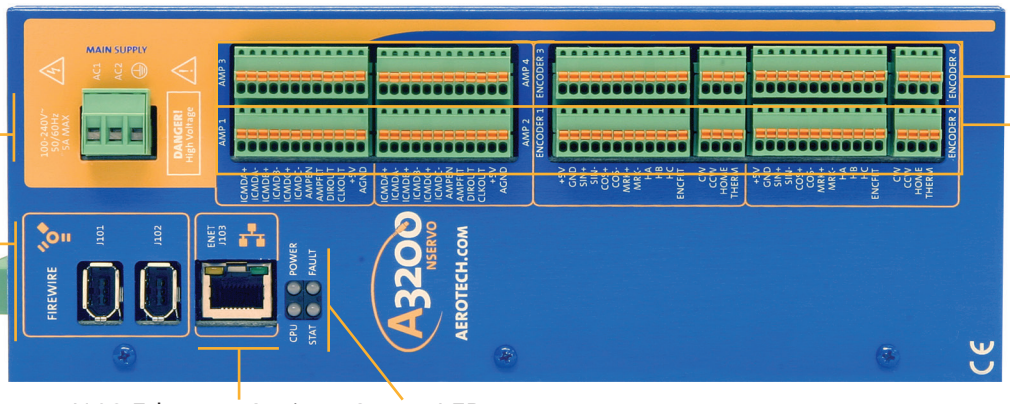
Device Setting

J111 General Purpose 48-Bit I/O

Nservo **SPECIFICATIONS**

Nservo-TB2/-TB4 Hardware

FRONT VIEW



AC Input

J101, J102 FireWire® Option

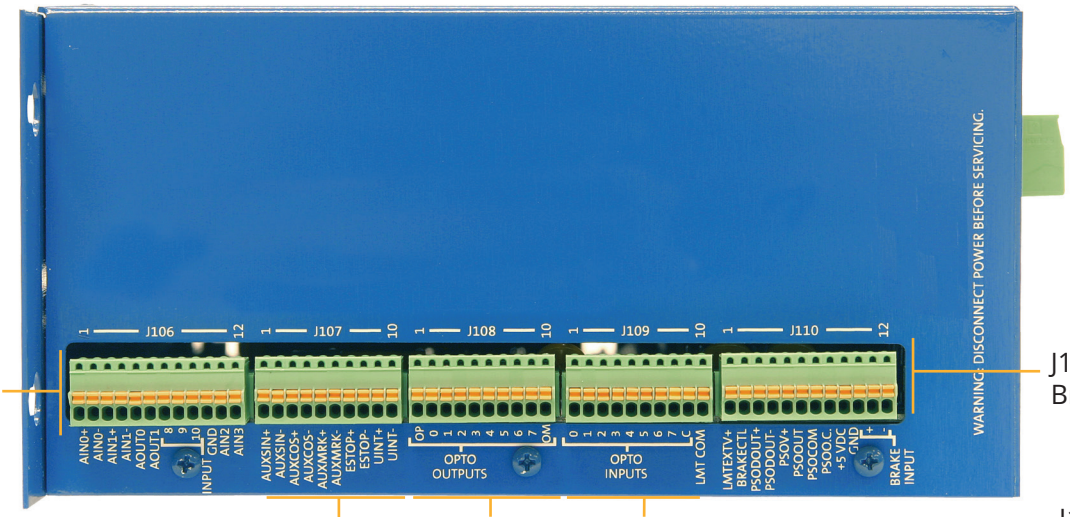
-TB4 Option (4 Axis)

-TB2 Option (2 Axis)

J103 Ethernet Option

Status LEDs

LEFT SIDE VIEW



J106 Analog I/O

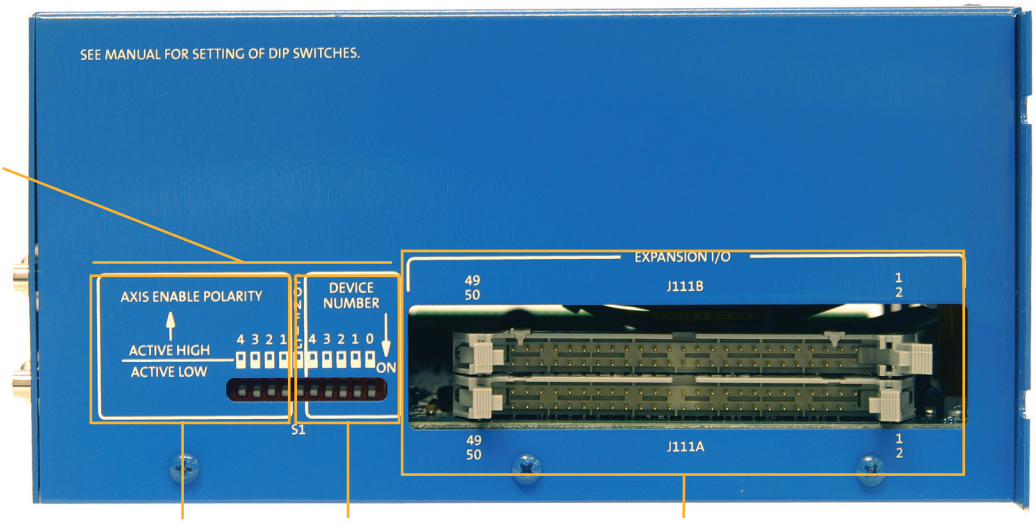
J110 PSO and Brake

J107 Estop and Extra Encoder Channel

J108; 8 Opto Outputs

J109; 8 Opto Inputs

RIGHT SIDE VIEW



S1 Switch

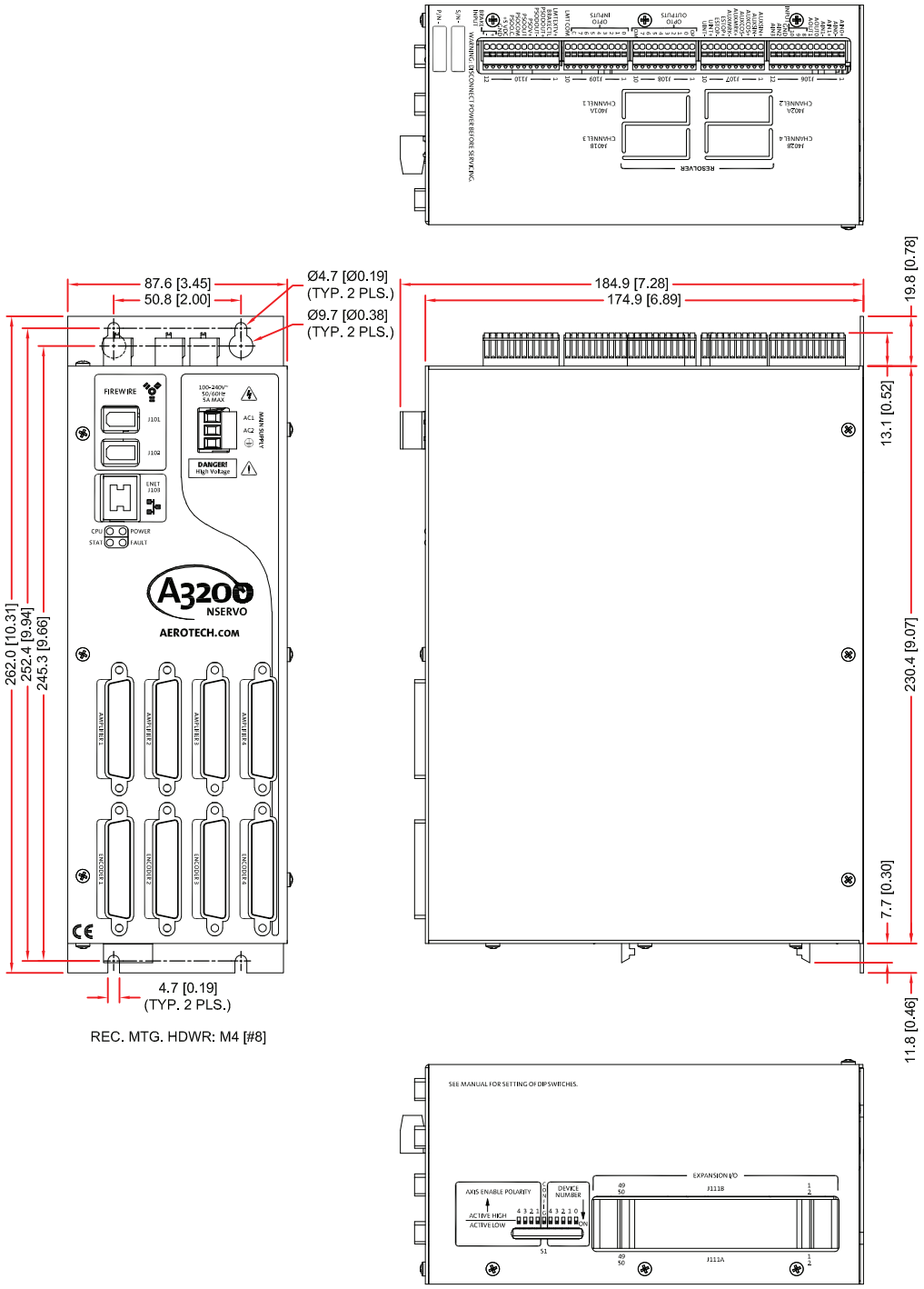
Amplifier Enable, Active State Selection

Device Setting

J111 General Purpose 48-Bit I/O

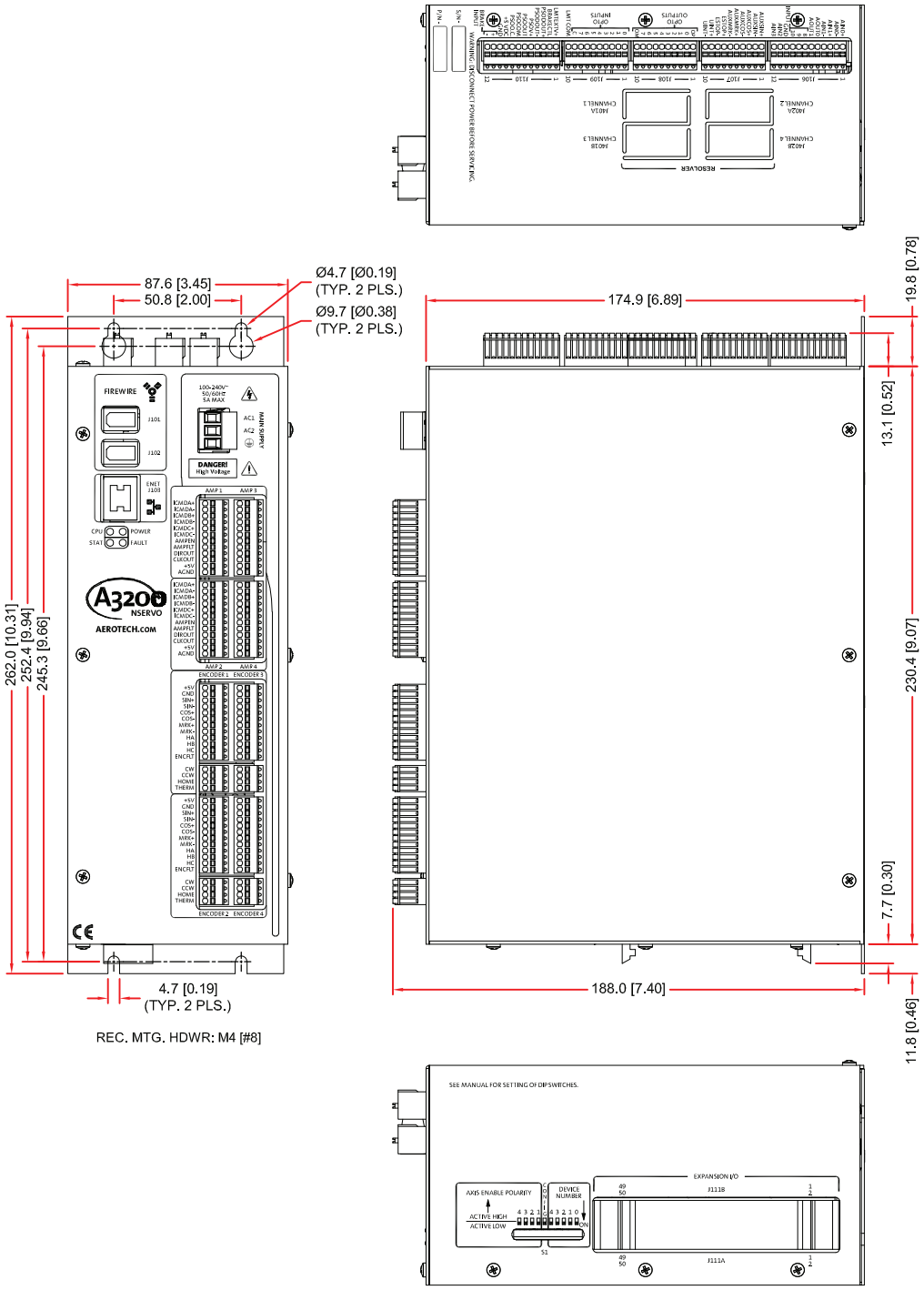
Nservo **Dimensions**

Nservo-DB2/-DB4



Nservo **Dimensions**

Nservo-TB2/-TB4



Nservo **Ordering Information**

Nservo Ordering Information

NSERVO-DB2	2-axis drive interface board with 25-pin D-style encoder/drive connectors for analog amplifiers. Includes single or dual-phase current command, 8 digital inputs, and 8 digital outputs
NSERVO-DB4	4-axis drive interface board with 25-pin D-style encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, and 8 digital outputs
NSERVO-TB2	2-axis drive interface board with screw terminal encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, and 8 digital outputs
NSERVO-TB4	4-axis drive interface board with screw terminal encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, and 8 digital outputs
NSERVO-ENET-DB2	2-axis drive interface board with 25-pin D-style encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, 8 digital outputs, and Ethernet
NSERVO-ENET-DB4	4-axis drive interface board with 25-pin D-style encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, 8 digital outputs, and Ethernet
NSERVO-ENET-TB2	2-axis drive interface board with screw terminal encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, 8 digital outputs, and Ethernet
NSERVO-ENET-TB4	4-axis drive interface board with screw terminal encoder/drive connectors for analog amplifiers, piezo drives, or galvos. Includes single or dual-phase current command, 8 digital inputs, 8 digital outputs, and Ethernet

PSO Options

-DPSO	Dual Axis PSO
-TPSO	Triple Axis PSO
-OPTO2	Opto isolator for PSO, requires DPSO/TPSO option (<+15v, high speed, low current, 6N136)
-OPTO3	Opto isolator for PSO, requires DPSO/TPSO option (<+30V, low speed, low current, 4N33)
-OPTO4	Opto isolator for PSO, requires DPSO/TPSO option (TIL117-M, 40 KHz, 5-25VDC, 50 ma)

Upgrade Options

-UPGRADE	Upgrade from U500/U600 system

Misc. Options

-LMT5V	Uses internal 5V supply to power limits and remove opto isolation
-SE	Single ended analog Input

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