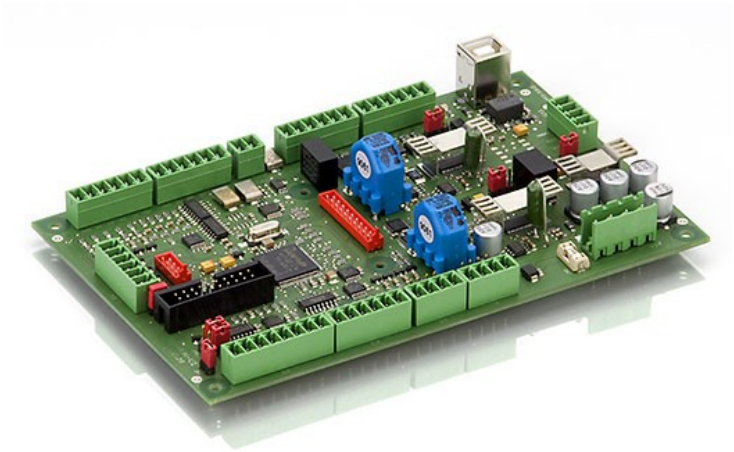
MDN Single-Axis Positioning Controller for Stepper and DC Motors up to 30 V, 3 A



- Compact single-axis positioning controller for stepper or DC motors
- Microstepping operation up to 1/128 step resolution
- Interfaces: USB 2.0, CAN, RS-422, RS-485
- Inputs: 4 limit switch inputs, 4 TTL inputs, 4 analog inputs (0–5 V), 1 encoder input
- Outputs: 4 PLC-compatible outputs (24 V / 0.5 A), 2 PWM outputs (24 V / 0.5 A)
- Point-to-point positioning operation
- Supply voltage: 9 to 30 VDC
- Max. output current: Stepper motor: 3 A per phase DC motor: 6 A

This single-axis positioning controller can be used to operate either a two-phase stepper motor or a DC servo motor.

Up to 32 units can be interconnected and operated together via a CAN bus network.

In stepper motor operation, the resolution can be configured by software for up to 128 microsteps per full step. This results in significantly smoother motor operation. The controller supports both open-loop and closed-loop operation.

The maximum phase current is 3 A.

The single-axis controller is operated and parameterized from a PC via a USB 2.0 interface. Support is provided for Windows 2000 and Windows XP.

A wide range of inputs and outputs, including TTL, analog, and PLC-compatible I/O, enables communication with external equipment and control systems.

When operating DC motors, the controller supports encoder signal processing for A/B/Index signals with line-driver interfaces, as well as TTL encoder signals with bandwidths of up to 7.5 MHz.

The maximum motor current is 6 A.

The controller supports point-to-point positioning with either triangular or trapezoidal velocity profiles.

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MDN Single-Axis Positioning Controller – Technical Specifications

Operating Modes:	Stepper motor operation: Open-loop or closed-loop, up to 128 microsteps DC motor operation: Closed-loop • Positioning control • Speed control • Torque control
Motor Types:	2-phase and 4-phase stepper motors DC motors
Supply Voltage	9–30 VDC
Motor Current	Stepper Motor: 3 A DC Motor: 6 A
Maximum Power Output	180 W
Power Stage:	Integrated power stage Dual full-bridge output stage with thermal overload protection and overcurrent protection
Connections: Supply Voltage: Motor Phases, Interfaces, I/Os, and Encoder:	Phoenix MSTBV 2.5/4-G (4-pin) Phoenix MCV 1.5/X-G-3.81 (2-, 4-, 6-, and 8-pin)
Interfaces	USB 2.0 Full-Speed CAN RS422/RS485, galvanically isolated
Outputs:	• 4 PLC-compatible outputs, 24 V / 0.5 A • 2 PWM outputs, 24 V / 0.5 A • Optional stepper motor boost output with clock and direction signals for connection to an external power stage
Inputs:	• 4 limit switch inputs • 1 encoder input, 5 V, line-driver or TTL compatible • 4 TTL inputs • 4 analog inputs (0–5 V)
Status Indicators:	2 status LEDs (red, green)
Dimensions:	160 x 100 x 25 mm
Operating Temperature Range:	0 ... +50 °C
Storage Temperature Range:	-40 ... +85 °C