

MDrive® Plus/Plus² MDI•23

NEMA 23 (57mm) CANopen integrated
1.8° 2-phase stepper motor & control
electronics

CE  REACH IP20/IP65



PRODUCT OVERVIEW

MDrive® Plus/Plus² CANopen products integrate 1.8° 2-phase stepper motor, motion controller, drive electronics and optional encoder. Products support CiA DS301 and DSP402 Device Profile for Drives and Motion Control.

Firmware is provided for setup and testing MDrive Plus CANopen products. CANopen Tester software and communication dongle (MD-CC500-000) are also available.

MDrive Plus/Plus² products deliver reliable performance for new and existing motion control applications. Satisfying the requirements for a wide range of machine builders.

Simplify your machine design and reduce cabinet size by replacing multiple components with a single compact integrated motor. Fewer individual system components eliminates multiple potential failure points, and lowers risk of electrical noise by eliminating cabling between motor and drive.

These compact, powerful and cost effective motion control solutions deliver exceptional smoothness and performance that can reduce system cost, design and assembly time for a large range of 2-phase stepper motor applications.

FEATURES AND BENEFITS

- Compact integrated microstepping drive, motion controller and NEMA 23 1.8° 2-phase stepper motor
- Advanced current control for exceptional performance and smoothness
- Single supply: +12 to +75 VDC
- 20 microstep resolutions up to 51,200 steps per rev, including: Degrees, Metric, & Arc Minutes
- Auxiliary logic power supply input
- IP20 or IP65 protection rating options
- 0 to 5 MHz step clock rate selectable in 0.59 Hz increments
- Up to eight I/O lines and one 10-bit selectable analog input
- Programmable motor run/hold current
- Available options include:
 - Encoder
 - Multiple motor stack lengths
 - Connector options
 - Long life linear actuators
 - Rear control knob for manual positioning
- Single, double, triple, & quad motor stack lengths available
- Graphical user interface provided for quick and easy configuration and programming via optional MD-CC500-000 comm converter



Additional setup, quick reference information, and supporting documents are available for download from the Novanta IMS download website <https://novantaims.com/dloads/>

Three-dimensional depictions of this product are available for download from <https://novantaims.com/dloads/3d-product-models/>



To select from the available features and build the LMD integrated stepper motor to fit your needs, use the Novanta IMS part number builder, available online at <https://novantaims.com/resources/part-number-builders/>

MDrive Plus/Plus² MDI•23 CANopen

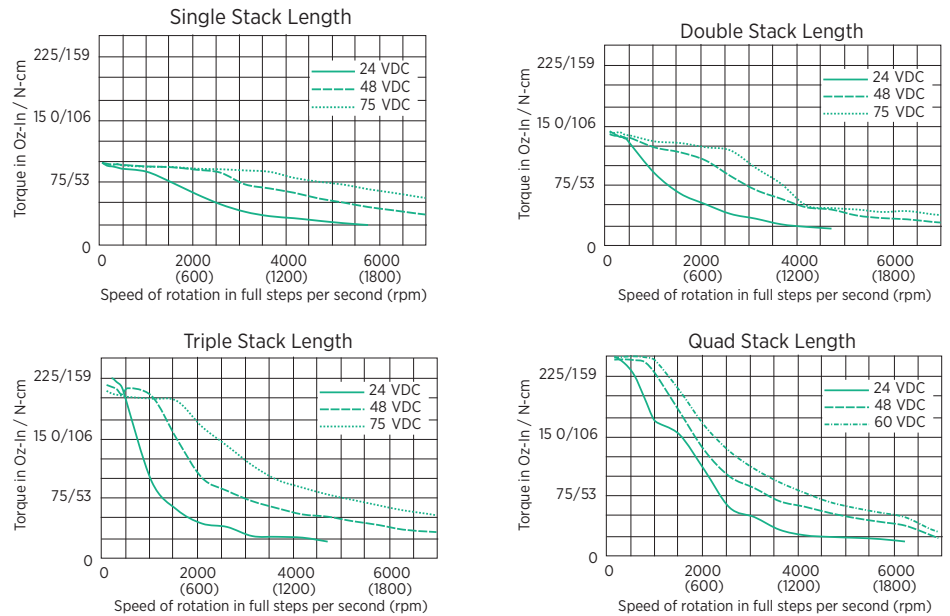
Motor Performance

		MDrive 23			
Motor	Stack length	Single	Double	Triple	Quad
Holding torque	oz-in	90	144	239	283
	N-cm	64	102	169	200
Detent torque	oz-in	3.9	5.6	9.7	14.2
	N-cm	2.7	3.9	6.9	10.0
Rotor inertia	oz-in-sec ²	0.0025	0.0037	0.0065	0.0108
	kg-cm ²	0.18	0.26	0.46	0.76
Weight (motor+driver)	oz	21.6	26.4	39.2	62
	g	612	748	1111	1746

Motor Speed Torque

Test conditions:

100% current with damper simulating load.



Accessories

Description	Length feet (m)	Part Number
Communication Converter Electrically isolated, in-line converter pre-wired with mating connector to conveniently set/program communication parameters for a single MDrive Plus via a PC's USB port.		
Interface cable for all CANopen products. Requires mating connector adapter for DB9 or M12 industrial connector. Requires power supply, not supplied.	12.0 (3.6)	MD-CC500-000
Prototype Development Cables Speed test/development with pre-wired mating connector with other cable end open.		
Mates to 14-pin locking wire crimp connector for I/O and remote encoder option	10.0 (3.0)	PD14-2334-FL3
Mates to 2-pin locking wire crimp connector for power	10.0 (3.0)	PD02-2300-FL3
Mates to 19-pin male M23 industrial connector with straight termination for I/O, power and remote encoder option	13.0 (4.0)	MD-CS100-000
Mates to 19-pin male M23 industrial connector with right angle termination for I/O, power and remote encoder option	13.0 (4.0)	MD-CS101-000
Mating Connector Kit Connectors for the assembly of cables. (Cable material not included). Sold in lots of 5. Manufacturer's crimp tool recommended for crimp connectors		
14-pin locking wire crimp connector for I/O and remote encoder option	—	CK-09
2-pin locking wire crimp connector for power	—	CK-04
Drive Protection Module Limits surge current and voltage to a safe level when DC input power to the MDrive Plus is switched on and off		
For all MDrive 23 CANopen products	—	DPM75