

MDrive® Plus/Plus² MDI•23

NEMA 23 (54mm) Programmable Motion Control integrated 1.8° 2-phase stepper motor & control electronics

CE  REACH IP20/IP65



PRODUCT OVERVIEW

MDrive® Plus/Plus² Motion Control products integrate 1.8° 2-phase stepper motor, fully programmable motion controller, drive electronics and optional encoder. Products with encoders include stall detection, position maintenance, and find index mark.

Programming for these stand-alone motion control solutions is via RS-422/485 interface with MCode software using simple 1 to 2 character instructions. ModbusTCP protocol is also available for IP20 products only.

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, programmable 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 parameter setup



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 Programmable Motion Control

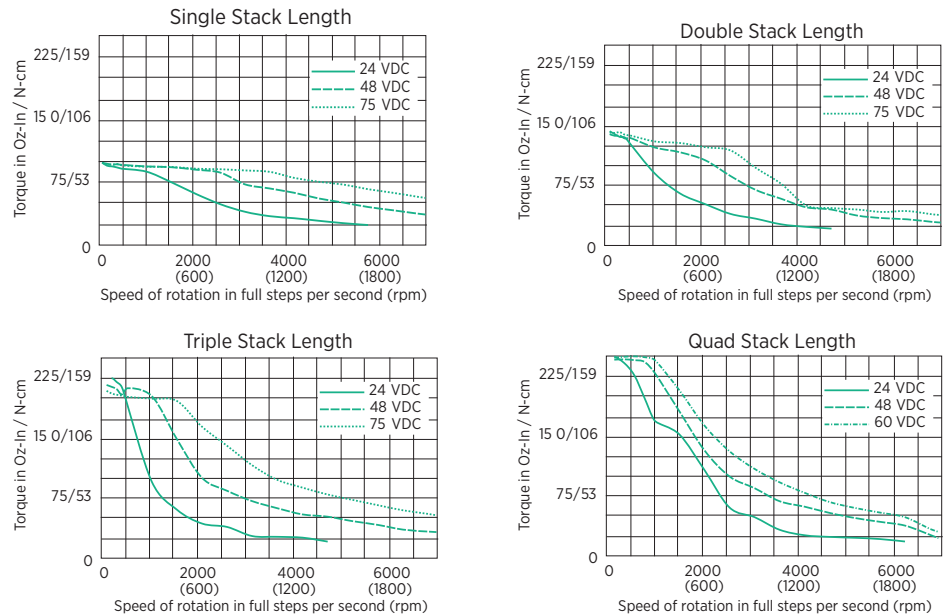
Motor Performance

		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 Converters		
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.		
Mates to 10-pin non-locking IDC connector	12.0 (3.6)	MD-CC400-001
Mates to 10-pin friction lock wire crimp connector	12.0 (3.6)	MD-CC402-001
Mates to 5-pin female M12 industrial connector	12.0 (3.6)	MD-CC401-001
Prototype Development Cables		
Speed test/development with pre-wired mating connector with other cable end open.		
Mates to 10-pin locking wire crimp connector for I/O and remote encoder option	10.0 (3.0)	PD10-1434-FL3
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		
10-pin friction lock wire crimp connector for communication	—	CK-02
10-pin non-locking IDC connector for communication	—	CK-01
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 motion control products	—	DPM75
Quick Start Kit		
For rapid design verification, all-inclusive QuickStart Kits includes prototype development cables and communication converter for MDrive Plus initial functional setup and system testing.		
For all MDrive 23 programmable motion control products, add a "K" to the beginning of the part number when ordering		