MDrive® Plus/Plus² MDI•14

NEMA 14 (35mm) Programmable Motion Control integrated 1.8° 2-phase stepper motor & control electronics

CE RoHS REACH **IP20**

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.

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 14 1.8° 2-phase stepper motor
- Advanced current control for exceptional performance and smoothness
- Single supply: +12 to +48 VDC
- 20 microstep resolutions up to 51,200 steps per rev including: Degrees, Metric, Arc Minutes
- Auxiliary logic power supply input
- 0 to 5 MHz step clock rate selectable in 0.59 Hz increments
- IP20 protection rating
- 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
  - Long life linear actuators
  - Rear control knob for manual positioning
- Single & triple 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/
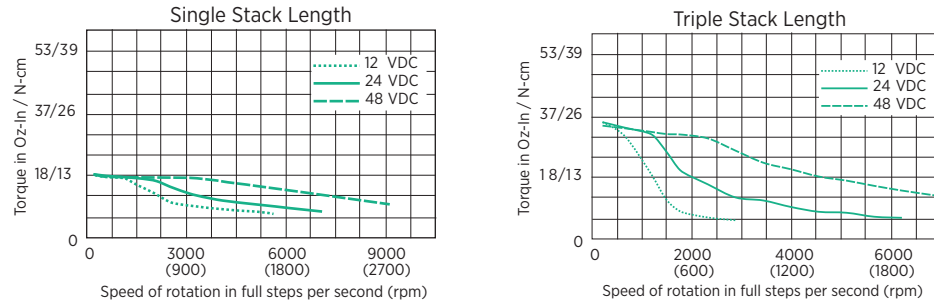
To select from the available features and build the LMD integrated stepper motor to fit your needs, use the Novanta IMS part number builder, available online at https://novantaims.com/resources/part-number-builders/

Novanta IMS

MDrive Plus/Plus^2 MDI•14 Programmable Motion Control

Motor Performance

Motor	Stack length	MDrive 14	
		Single	Triple
Holding torque	oz-in	18	36
	N-cm	13	25
Detent torque	oz-in	2.0	4.4
	N-cm	1.4	3.1
Rotor inertia	oz-in-sec^2	0.000198	0.000801
	kg-cm^2	0.014	0.0566
Weight (motor+driver)	oz	5.29	12.8
	g	150	380

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.		
Mates to 12-pin locking wire crimp connector	12.0 (3.6)	MD-CC403-001
Mates to 10-pin friction lock wire crimp connector 12.0 (3.6) MD-CC402-001	12.0 (3.6)	MD-CC402-001
Prototype Development Cables Speed test/development with pre-wired mating connector with other cable end open.		
Mates to 12-pin locking wire crimp connector for I/O, communication & power	10.0 (3.0)	PD12B-1434-FL3
Mates to 12-pin locking wire crimp connector for I/O, power and communication	10.0 (3.0)	PD10-1434-FL3
Mates to 16-pin locking wire crimp connector for I/O, power and remote encoder option	10.0 (3.0)	PD16-1417-FL3
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		
12-pin locking wire crimp connector for I/O, power and communication	—	CK-08
10-pin friction lock wire crimp connector for communication	—	CK-02
16-pin locking wire crimp connector for I/O, power and remote encoder option	—	CK-10
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 14 programmable 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 14 programmable motion control products, add a "K" to the beginning of the part number when ordering		