

# Liberty MDrive 42mm Rotary Stepper Motor

Programmable Motion Control NEMA 17 integrated 1.8° 2-phase stepper motor & control electronics

UL LISTED CE RoHS REACH IP20/IP65



## PRODUCT OVERVIEW

Robust Liberty MDrive (LMD) Motion Control products integrate 1.8° 2-phase stepper motors with control electronics. Included are on-board programmable motion controller for stand-alone operation, and optional hMT closed loop performance.

hMT closed loop performance is available in products with either a multi-turn absolute encoder or incremental magnetic encoder. Closed loop performance maintains functional motor control to prevent loss of synchronization, offers variable current control, torque control, and use more of the motor's full torque range.

Multi-turn absolute encoders may benefit users by retaining position information when powered down. This can eliminate homing routines and reduce setup time at system startup.

Product parameterization, programming and monitoring is through user-friendly software with an RS-422/485 serial interface. Settings can be downloaded and stored in non-volatile memory.

Especially well suited for industrial applications, products include an IP65 rated version with circular M12 connectors.

Compact Liberty MDrive products can reduce machine complexity, size and cost in many stepper and servo motor applications. Their high degree of integration can increase system reliability by reducing the number of individual components, eliminating multiple potential failure points.

## FEATURES AND BENEFITS

- Compact NEMA 17 1.8° 2-phase stepper motor integrated with control electronics, including programmable motion controller
- Available in 1, 2, or 3 stack lengths
- Two (2) connection options available: Pluggable terminal and M12 circular. Pluggable model is IP20 rated, M12 circular connector model is IP20 or IP65 rated with proper motor shaft sealing
- RS-422/485 Serial Interface communication
- User interface available for download, providing quick & easy commissioning
- Multi-turn absolute or incremental magnetic encoder options
- Operating temperature of -20 to 50 °C (-4 ... 122 °F)
- Nominal operating voltage: 24/48 VDC  
Maximum Current: 2.0A
- User selectable Temperature Warning (Range: 0° - 84° C (32° - 183.2° F))
- 4 year conditional warranty



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

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



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/>

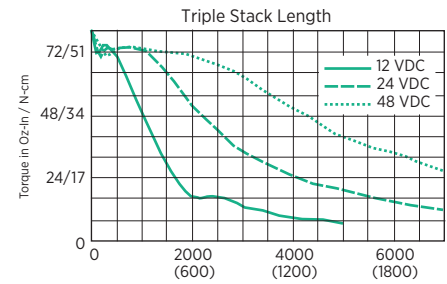
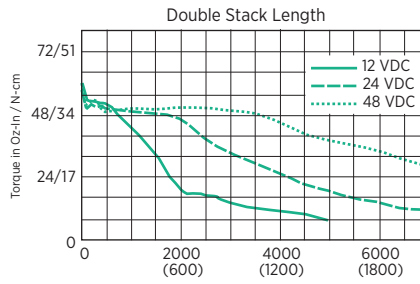
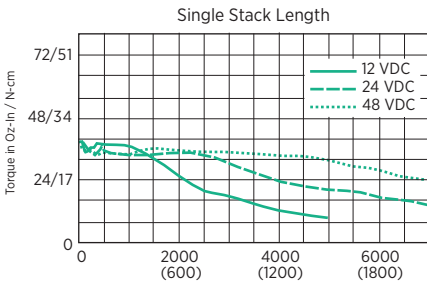
# LMDM•42 Programmable Motion Control

## Motor Performance








Motor	Stack length	Single	Double	Triple
Holding torque	oz-in	44	58	88
	N-cm	31	41	62
Detent torque	oz-in	1.7	2.1	3.5
	N-cm	1.2	1.5	2.5
Rotor inertia	oz-in-sec <sup>2</sup>	0.0005	0.0008	0.0012
	kg-cm <sup>2</sup>	0.038	0.057	0.082
Radial load limit, center of shaft	lbs	8.5	8.5	8.5
	kg	3.8	3.8	3.8
Axial load limit @ 1500rpm (5000 full steps/sec)	lbs	10	10	10
	kg	4.5	4.5	4.5
Weight (motor+driver)	oz	13.6	16.0	18.4
	g	385	454	522

## LM•42 NEMA 17 Speed Torque

Test conditions: 100% current with damper simulating load



## Accessories

Description	Length feet (m)	Part Number	Description	Length feet (m)	Part Number
<b>Communication Converter</b> USB-pluggable converter to set/program communication parameters in 32- or 64-bit Windows®			<b>Straight Configuration Cordsets (IP65)</b> Shielded cables pre-wired with straight M12 mating connectors		
 Mates to DB9 connector	6.0 (1.8)	MD-CC404-000	 Communication cordset w/ leads, mates to 5-pin female connector	10.0 (3.0)	MD-CS600-000
 Mates to M12 5-pin female connector	6.0 (1.8)	MD-CC405-000	 I/O cordset w/ leads, mates to 12-pin male connector	10.0 (3.0)	MD-CS610-000
<b>Back-up Battery Pack for Absolute Encoder Models</b> Extend stored position data up to 5-years for 1 to 6 LMDs with absolute encoder			 Power cordset w/ leads, mates to 4-pin male connector	10.0 (3.0)	MD-CS620-000
 Battery pack, DIN-rail mount. Uses 3 AA batteries, not provided	—	ICP0531	<b>Right Angle Configuration Cordsets (IP65)</b> Shielded cables pre-wired with right angled M12 mating connectors		
LMD mating cable(s) with crimp connector to flying lead end	3.3 (1.0)	PD02-0531-FL1	 I/O cordset w/ leads, mates to 12-pin male connector	10.0 (3.0)	MD-CS611-000
PLC mating cable with crimp connector to flying lead end	3.3 (1.0)	PD04-0531-FL1	 Power cordset w/ leads, mates to 4-pin male connector	10.0 (3.0)	MD-CS621-000
<b>Cable Accessory Kit (IP65)</b> Kits for M12 products			<b>Replacement Mating Connector Kit (IP20)</b> Kits for pluggable products		
 Includes two M12 screw plugs and one sealing cap	—	CK-16	 Includes one 2-pin power mate, and two 7-pin multifunction mates	—	CK-15