Liberty MDrive 85mm Rotary Stepper Motor

Ethernet TCP/IP NEMA 34 integrated 1.8° 2-phase stepper motor & control electronics

c(UL)us LISTED CE RoHS REACH **IP20/IP65**

PRODUCT OVERVIEW

Robust Liberty MDrive (LMD) Ethernet TCP/IP products integrate 1.8° 2-phase stepper motors with control electronics including an Ethernet controller that supports user-selectable protocols: Profinet, EtherNet/IP, and Modbus/TCP. An optional encoder delivers 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.

LMD products are ODVA-compliant adapter class devices capable of explicit or implicit messaging. Compact motion control solutions that interface with many manufacturer's systems.

Especially well suited for industrial applications, products include an IP65 rated version with circular M12 connectors. Now with dual comm port option.

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 34 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

- Ethernet IP, Profinet, Modbus/TCP, and MCode/TCP communication protocols available

- 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: 4.0A

- 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/dloads/

Three-dimensional depictions of this product are available for download from https://novantaims.com/dloads/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/
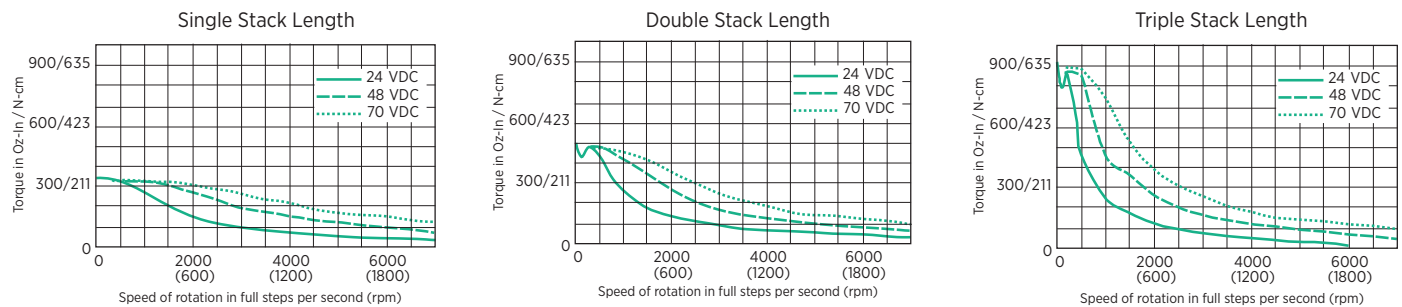
https://novantaims.com/

Novanta
IMS

LMDE•85 Ethernet TCP/IP

Motor Performance

Motor	Stack length	Single	Double	Triple
Holding torque	oz-in	336	480	920
	N-cm	237	339	650
Detent torque	oz-in	10.9	14.16	19.83
	N-cm	7.7	10.0	14.0
Rotor inertia	oz-in-sec^2	0.0127	0.0191	0.0382
	kg-cm^2	0.90	1.35	2.70
Radial load limit, center of shaft	lbs	65	65	65
	kg	29.4	29.4	29.4
Axial load limit @ 1500rpm (5000 full steps/sec)	lbs	20	20	20
	kg	9	9	9
Weight (motor+driver)	lbs	4.45	5.65	9.0
	kg	2.02	2.56	4.08

LM•85 NEMA 34 Speed Torque

Test conditions: 100% current with damper simulating load

Single Stack Length

Double Stack Length

Triple Stack Length

Accessories

	Description	Length feet (m)	Part Number		Description	Length feet (m)	Part Number
	Back-up Battery Pack for Absolute Encoder Models Extend stored position data up to 5-years for 1 to 6 LMDs with absolute encoder				**Straight Configuration Cordsets (IP65)** Shielded cables pre-wired with straight M12 mating connectors		
	Battery pack, DIN-rail mount. Uses 3 AA batteries, not provided	—	ICP0531		I/O cordset w/ leads, mates to 12-pin male connector	10.0 (3.0)	MD-CS610-000
	LMD mating cable(s) with crimp connector to flying lead end	3.3 (1.0)	PD02-0531-FL1		Power cordset w/ leads, mates to 4-pin male connector	10.0 (3.0)	MD-CS620-000
	PLC mating cable with crimp connector to flying lead end	3.3 (1.0)	PD04-0531-FL1		Communication cordset w/ leads, mates to 4-pin female connector	6.5 (2.0)	MD-CS640-000
	Cable Accessory Kit (IP65) Kits for M12 products				**Right Angle Configuration Cordsets (IP65)** Shielded cables pre-wired with right angled M12 mating connectors		
	Includes two M12 screw plugs and one sealing cap	—	CK-16		I/O cordset w/ leads, mates to 12-pin male connector	10.0 (3.0)	MD-CS611-000
	Replacement Mating Connector Kit (IP20) Kits for pluggable products				Power cordset w/ leads, mates to 4-pin male connector	10.0 (3.0)	MD-CS621-000
	Includes one 2-pin power mate, and two 7-pin multifunction mates	—	CK-15		Communication cordset w/ leads, mates to 4-pin female connector	6.5 (2.0)	MD-CS641-000