

Absolute MDrive

Lexium MDrive® with multi-turn absolute encoder



Multi-turn absolute encoder and control electronics integrated with stepper motors

UL[®] LISTED CE RoHS REACH IP65

Schneider Electric Motion

Schneider
Electric

Description

Absolute MDrive®

Lexium MDrive with multi-turn absolute encoder



At an extremely competitive price, multi-turn absolute encoders enhance LMD integrated motor and electronics products while fitting in the same compact footprint.

Product offer

Absolute MDrive® products integrate a 1000 line count (4000 counts/rev) multi-turn absolute encoder with 1.8° 2-phase stepper motor and control electronics. Rotary and linear motors are available. IP65-rated products for protection against dust and moisture are also available. These products can reduce machine complexity, size and cost for a wide variety of motion applications.

Robust Lexium MDrive (LMD) products are enhanced with a multi-turn absolute encoder at an extremely competitive price. Internal to the product so there is no increase in size, absolute encoders detect and store position information even when powered down. This can eliminate homing routines and reduce setup time at system startup.

Three (3) communication versions are available:

- Programmable Motion Control: RS-422/485 interface with programmable controller.
- CANopen: CANopen interface with programmable controller.
- Ethernet: supports user-selectable protocols Profinet, EtherNet/IP and ModbusTCP.

LMD products will also operate in closed loop hMTechnology (hMT) mode. Unlike traditional motor systems, hMT closed loop performance combines the best of servo and stepper motor technologies, while delivering unique capabilities and enhancements over both, including:

- real time closed loop control
- no loss of synchronization/stalling
- full use of motor torque
- torque mode control
- reduced motor heat (1)
- lower energy consumption (1)

(1) Achieved with hMTechnology variable current control.

Application areas

Absolute MDrive® products are compact motion control solutions that can reduce system cost, design and assembly time for a wide range of motion applications. Save space, reduce wiring, and eliminate multiple potential failure points with fewer individual system components. Ideal for machine builders who want a robust motor with integrated electronics and multi-turn absolute encoder performance.

OEMs who want to reduce machine size, cost and complexity will find robust Lexium MDrive with Absolute Encoder products deliver exceptional performance and value for many applications.



Absolute MDrive products: NEMA 34 rotary | NEMA 23 rotary | IP65 & IP20 connector styles | NEMA 17 rotary | NEMA 23 external shaft linear | NEMA 17 external shaft linear

General specifications					
Input power	Voltage		LMD•42 rotary & linear	LMD•57 rotary & linear	LMD•85 rotary only
	Current maximum (1)		2.0 A	3.5 A	4.0 A
Motor	Frame size	NEMA	17	23	34
		inches	1.7	2.22	3.39
		mm	42.7	56.4	86.11
	Step angle α	°	1.8	1.8	1.8
	Premium high torque	option	no	yes	yes - custom
Thermal	Length (2)	stack size	single, double, triple	single, double, triple	single, double, triple
	Operating temp non-condensing	heat sink maximum	85°C		
		motor maximum	100°C		
Protection	Type	temp warning	0... 84°C, user selectable		
		earth grounding	via product chassis ground lug		
		IP ingress rating	IP20, IP65		
Communication versions	Programmable Motion Control		RS-422/485 programmable with stored memory		
	CANopen		CANopen interface with programmable controller		
	Ethernet		EtherNetIP, Profinet, ModbusTCP		
External Linear Actuators only					
Maximum thrust (3)	General purpose nut	lbs	25	60	not offered
		kg	11	27	
	Anti-backlash nut	lbs	5	25	
		kg	2	11	
Repeatability	Maximum	inch	0.005	0.005	
		mm	0.127	0.127	

(1) Actual power supply current will depend on voltage and load.

(2) Linear actuator products only offered in single stack motor length.

(3) Performance data for maximum force/load is based on a static load and will vary with a dynamic load.

An optional Communication Converter is recommended with first orders.

Part numbers

Absolute MDrive®

Lexium MDrive with multi-turn absolute encoder



Rotary Lexium MDrive
NEMA17/42mm NEMA23/57mm NEMA34/85mm



External Linear Actuator Lexium MDrive
NEMA23/57mm NEMA17/42mm

Part numbers

ROTARY PRODUCTS – Example

L M D A M 4 2 1

Product

LMD = Lexium MDrive

L M D A M 4 2 1

Control type

A = Closed loop / with hMT and multi-turn absolute encoder (1)

L M D **A** M 4 2 1

Communication type

M = Programmable Motion Control via RS-422/485 serial interface

A = CANopen interface

E = EtherNet/IP, ModbusTCP, Profinet, MCode/TCP

D = Dual Port EtherNet/IP, ModbusTCP, Profinet, MCode/TCP (4)

L M D A **M** 4 2 1

Flange size

42 = NEMA 17 / 42mm (2)

57 = NEMA 23 / 57mm (2)

85 = NEMA 34 / 85mm

L M D A M **4 2** 1

Motor length

1 = single stack (2)

2 = double stack

3 = triple stack

L M D A M 4 2 **1**

IP rating

blank = IP20 with pluggable connectors is the default for rotary products

C = IP65 with circular connectors, use to indicate variation from default

L M D A M 4 2 1

EXTERNAL LINEAR ACTUATOR PRODUCTS – Example

L M D A M 4 2 1 P -LA 3 M 0 6 0 G T

IP rating

P = IP20 with pluggable connectors

C = IP65 with circular connectors

L M D A M 4 2 1 **P**

Lead screw

size 42/NEMA17:

-LA = 0.25" / 6.35 mm

-LB = 0.125" / 3.175 mm

-LC = 0.063" / 1.588 mm

size 57/NEMA23:

-LG = 0.375" / 9.525 mm

-LA = 0.20" / 5.08 mm

-LB = 0.167" / 4.233 mm

-LD = 0.083" / 2.116 mm

L M D A M 4 2 1 P **-LA** 3 M 0 6 0 G T

Shaft style

3 = external shaft

L M D A M 4 2 1 P -LA **3** M 0 6 0 G T

Screw end finish

M = metric

U = UNC

S = smooth

Z = none

L M D A M 4 2 1 P -LA 3 **M** 0 6 0 G T

Screw length (3)

lengths available in 0.1" increments

030 = 03.0" / 76 mm minimum

180 = 18.0" / 457 mm maximum (for size 42/NEMA17)

240 = 24.0" / 610 mm maximum (for size 57/NEMA23)

L M D A M 4 2 1 P -LA 3 M **0 6 0** G T

Nut

G = general purpose

A = anti-backlash

L M D A M 4 2 1 P -LA 3 M 0 6 0 **G** T

Screw coating

T = Teflon®

Z = none

L M D A M 4 2 1 P -LA 3 M 0 6 0 G **T**

(1) Closed loop control delivers encoder feedback and hMT enhanced motor performance.

(2) External linear actuator products only available with NEMA 17 & 23 single stack motors.

(3) To calculate screw length: screw length = [desired stroke length] + [nut length] + [mounting surface plate thickness]

(4) Dual Port configuration is only available for NEMA 23 and NEMA 34 products with M12 circular connectors.

Accessories

Absolute MDrive®

Lexium MDrive with multi-turn absolute encoder

for all products

description	length feet (m)	part number
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Back-up battery pack

Extend stored position data up to 5-years for 1 to 6 LMD units

Battery pack, DIN-rail mount. Uses 3 AA batteries, not provided	—	ICP0531
LMD mating cable(s) with crimp connector to flying lead end	3.3 (1.0)	PD02-0531-FL1
PLC mating cable with crimp connector to flying lead end	3.3 (1.0)	PD04-0531-FL1

for IP20 products – pluggable connectors

description	length feet (m)	part number	comm types (1)		
			M	A	E

Communication converters

USB-pluggable converter to set/program communication parameters in 32- or 64-bit

Mates to DB9 connector	6.0 (1.8)	MD-CC404-000	•		
Mates to DB9 connector. Includes: CAN dongle, terminating resistor, and pre-wired mating cables	6.0 (1.8)	MD-CC501-000		•	

Replacement mating connector kits

Includes one 2-pin power mate, and one set (2 pieces) 7-pin multifunction mates	—	CK-15	•	•	•
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for IP65 products – M12 connectors

description	length feet (m)	part number	M A E		
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Communication converters

USB-pluggable converter to set/program communication parameters in 32- or 64-bit

Mates to M12 5-pin female connector	6.0 (1.8)	MD-CC405-000	•		
Mates to M12 5-pin male connector. Includes: CAN dongle, terminating resistor, and pre-wired mating cables	6.0 (1.8)	MD-CC502-000		•	

Cordsets

Shielded cables pre-wired with straight M12 mating connectors

	Straight Configuration	Right Angle Configuration
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Communication cordset mates to 5-pin female connector	10.0 (3.0)	MD-CS600-000	—	•		
I/O cordset mates to 12-pin male connector	10.0 (3.0)	MD-CS610-000	MD-CS611-000	•	•	•
Power cordset mates to 4-pin male connector	10.0 (3.0)	MD-CS620-000	MD-CS621-000	•	•	•
Communication cordset mates to 4-pin female connector	6.5 (2.0)	MD-CS640-000	MD-CS641-000			•
Communication cordset mates to 5-pin male connector	10.0 (3.0)	MD-CS650-000	—		•	

Daisy chaining

Connect multiple units together in sequence with Y cable. Termination plug, sold separately, is required at end of run.

Y cable mates to M12 communication connector	0.3 (1.0)	MD-CS660-000	—		•	
M12 bus termination (resistor) plug	—	PLG-M12TP	—		•	
Daisy chaining - Dual Port Ethernet products	1.6 (0.5)	MD-CS670-005	MD-CS671-005			•
Interconnect cables	3.3 (1.0)	MD-CS670-010	MD-CS671-010			
	10.0 (3.0)	MD-CS670-030	MD-CS671-030			

(1) Communication types:

M = Programmable Motion Control via RS-422/485 serial interface

A = CANopen interface

E = EtherNet/IP, ModbusTCP, Profinet, MCode/TCP



ICP0531



MD-CC404-000



MD-CC501-000



MD-CC405-000



MD-CC502-000



MD-CS600-000



MD-CS620-000



MD-CS610-000



MD-CS611-000



MD-CS640-000



MD-CS621-000



MD-CS650-000



MD-CS641-000



MD-CS670-0xx



MD-CS671-0xx

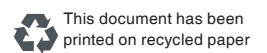


MD-CS660-000

PLG-M12TP

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