

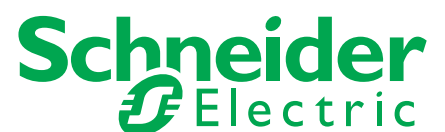
# Rethinking motion control automation

## Lexium MDrive®

Compact integrated motors  
simplifying machine building



Intelligent motion systems





# Simplifying machine building

## Lexium MDrive®

Integrated motors deliver measurable savings while reducing machine complexity and size for a wide range of motion applications.

### Reliability

Lexium MDrive integrated motors simplify system design by replacing multiple components with one compact product. These complete motion systems integrate stepper motor, driver, controller, and internal encoder with closed loop performance. Wiring is reduced, simplifying the EMC concept in new and existing applications. While fewer parts increases system reliability.

### Efficiency

If you need to get your machine to market faster, Lexium MDrive products can help by speeding design time and simplifying assembly. Sourcing and validating components from multiple vendors becomes a thing of the past. And with user-friendly software provided at no extra charge, your system can be up and running quickly.

### Compact design

Integrated motors form a single compact unit for measurable space savings that can reduce the size of your machine footprint. From factory floor to laboratory bench, these compact motion products deliver big performance at a low total installed cost.



MDrive, the world leader in integrated motors, can simplify your motion control design challenges without requiring you be a mechatronics expert.



Integrated motors benefit many industries including:

- Medical
- Pharmaceutical
- Life sciences
- Lab automation
- Imaging
- Printing
- Packaging
- Material handling
- Labeling
- Electronics manufacture

# 40%

Reduce system wiring by 40% with integrated motors, while simplifying the EMC concept and improving machine reliability.

# 4yr

Lexium MDrive quality assurance is backed by up to 4 years warranty. Compared to 12 months, typical industry coverage.

# 2x torque

With hMT closed loop performance,  
available motor torque is doubled

## hMT closed loop performance

Delivering enhanced motor performance and optimizing total cost of ownership for a wide range of applications.

### Enhanced performance

Lexium MDrive integrated motors are reliable, cost effective and compact. System builders may also find a variety of application needs resolved with hMT enhanced performance features, including:

- closed loop feedback
- motors delivering up to twice as much torque
- variable current control saving energy and reducing heat
- torque control

### Hybrid Motion Technology/hMT

hMT is a proprietary hardware-based system that monitors motor shaft position in sub-microsecond increments preventing loss of synchronization. This precise motor control is beneficial in a wide range of applications from packaging, labeling and assembly to life sciences, automated test and measurement.

### Stepper vs. servo motor

System designers no longer have to choose: stepper vs. servo motor. High performance Lexium MDrive products combine the best of both motor technologies, while delivering unique capabilities and enhancements over both.



Variable Current Control, available on hMT systems, draws only the current needed to make a move. With applications working more efficiently, systems can reduce energy use, generate less heat, and lower operating costs.

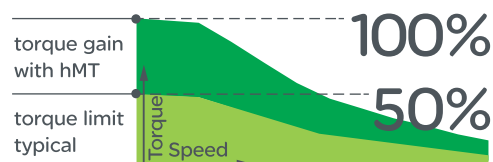


Performance benefits of hMT include:

- closed loop performance
- stiffness at standstill
- no tuning required
- torque mode
- variable current
- lower energy use
- reduced motor heating
- real time control
- no synchronization loss
- smooth motion
- high torque at starting and at low speed
- cost effective

# 50%

Derating stepper motors 50%, typical in preventing stalling, is eliminated as hMT never loses functional motor control.



# Lexium MDrive product overview

For machine builders who want to reduce machine size, cost and complexity. Robust integrated motors can deliver exceptional performance and value in many stepper and servo motor applications.

## Communications

### EthernetTCP/IP

- EtherNet/IP
- Profinet
- ModbusTCP

### Serial Interface, RS-422/485

- CANopen
- Programmable Motion Control
- Pulse/Direction

## Part numbers



For best fit and function in each application, a range of product configurations is offered. To ensure optimum performance in your system, expert technical support is available pre/post sale without charge. From application engineering to field service, we are committed to your success.

| Example   | L | M | D | C | A | 4 | 2 | 1 | _ |
|---|---|---|---|---|---|---|---|---|---|
| <b>Product</b><br>LM = Lexium MDrive  | L | M |   |   |   |   |   |   |   |
| <b>Motor</b><br>D = hybrid stepper, 1.8°<br>H = high torque stepper, 1.8°   |   |   | D |   |   |   |   |   |   |
| <b>Control type</b><br>C = Closed loop / with hMT and encoder<br>O = Open loop / no hMT or encoder  |   |   |   | C |   |   |   |   |   |
| <b>Communication type</b><br>A = CANopen serial interface<br>M = Programmable Motion Control via RS-422/485 serial interface<br>P = Pulse/Direction via RS-422/485 serial interface<br>E = EthernetTCP/IP |   |   |   |   | A |   |   |   |   |
| <b>Flange size</b><br>42 = NEMA 17 1.7 inch 42mm<br>57 = NEMA 23 2.3 inch 57mm<br>85 = NEMA 34 3.4 inch 85mm  |   |   |   |   |   | 4 | 2 | 1 |   |
| <b>Motor length</b><br>1 = single stack<br>2 = double stack<br>3 = triple stack   |   |   |   |   |   |   |   | 1 |   |
| <b>Variation</b><br>only include for M12 IP65 products, otherwise omit from part #<br>C = IP65 with M12 circular connectors   |   |   |   |   |   |   |   |   | C |

## Integrated motor anatomy



Lexium MDrive products reduce system design time, cabinet size, machine wiring, and potential failure points.

### System components

The compact size of Lexium MDrive products demonstrates advanced engineering in combining multiple components and features.

These include:

- rotary stepper motor – hybrid or high torque
- microstepping drive
- motion controller
- internal encoder for closed loop performance
- IP65 sealed – resists moisture and dust
- isolated communication and I/O
- network protocol interfaces
- LED status indicators

### Connectors

Separate interface ports are provided for I/O, communications and power.

Two standard connector themes are offered:

#### Pluggable connectors

All connectors are locking, and conveniently grouped for ease of use. Mating connectors are color-coded and keyed against wrong-plugging.

#### M12 circular connectors with IP65 rating

Circular industrial connectors are featured on all IP65-rated Lexium MDrive products. The standardized M12 connectors provide a robust product interface sealed against moisture and dust. Well suited for demanding applications.

## Accessories



Communication converters, cordsets, cables, mating connectors and more are available for ease of interface to Lexium MDrive products, from prototype to production.

### RS-422/485

**Serial communication kits** are available for setting and programming product parameters. Kits include a USB-pluggable communication converter. Available for pluggable and circular connector Lexium MDrive products.

### CANopen

**CANopen communication kits** are available for ease of interface to pluggable and circular connector products. Kits include a dongle, terminating resistor, and pre-wired shielded cable.

**Y-cable** and termination plug simplify daisy chaining M12 CANopen products.

### Cordsets

**Shielded cables**, pre-wired with straight M12 mating connectors, are available for ease of prototyping. Cable length is not an option.



Custom Lexium MDrive products are available for unique OEM applications. From software/firmware to hardware, we welcome inquiries about your special requirements.

Our in-house engineering team is experienced in working to resolve specific system needs. Please contact our U.S. factory to learn more.



REACH

**EtherNet/IP**  
conformance tested

**IP65**

Product compliance is independently validated to meet the most recent quality, environmental and performance standards. In addition, an internal quality staff conducts rigorous ongoing testing and inspection to ensure conformance.

Schneider Electric Motion USA

370 North Main Street  
Marlborough, CT 06447  
Phone: (860) 295-6102  
Fax: (860) 295-6107  
[www.motion.schneider-electric.com](http://www.motion.schneider-electric.com)