Luminary Series Features and Benefits:

√ Power-to-size ratio that gives the OEM an advantage
√ Proven servo motion technology provides product reliability
√ Flexible hardware platform for made-to-order designs
√ Open technologies to expand its range of capabilities
√ Multi-axis connectivity for flexible coordinated motion control
Servo Drives
- 3.3 amps or 5.0 amps
- 100 to 240 Vac input power
- Analog speed control or optional Serial Bus Drive Interface
- Encoder feedback outputs

Servo Motors
- 30 to 1000 Watts
- Speeds to 6000 RPM
- Torques to 10 Nm (90 in-lbs)

Stepper Drives
- 24 Vdc input power
- Analog speed command
- Encoder feedback outputs
- Serial Bus Drive Interface

Stepper Motors
- Nema 23
- Nema 17
- Encoder feedback
- Low noise
- No skip

Automation Controller
- Serial Bus Interface hub for four axis control
- Master encoder input interface
- Digital inputs & outputs
- High speed trap hardware-based input port

OEM Design Services
- Let Industrial Indexing Systems, Inc. design a motion control system based on your requirements for function and fit.

Development Software Support

L-Drive
See pages 4-5
Real-time Motor/Drive Performance Monitoring and Tuning Software

SMA-2000
Motor/Drive/Load Analysis and Motor Selection Software

EDE 4.x
Multi-Axis Software Automation Development and Diagnostic Tools

See page 12
See page 6-11
See pages 14-15
See pages 16-20
Luminary Series Product Overview

High volume custom configurations engineered for the exact function and fit is why the Luminary Series is part of the Industrial Indexing Systems’ product offering to the automation market place. Luminary Series products include the single axis motor and drive and multi-axis motor and drive systems functioning in simple torque, velocity or position control mode.

A product’s form, fit, and function are important to an original equipment manufacturer (OEM). All the Luminary system components are configurable in size and shape to meet your requirements. Dedicated design engineers are ready to discuss how our system can be best utilized for your project.

We select the most efficient motors for the job, write software to perform the required motion sequences, I/O functions and communications; all packaged into a system with the form and function you need. OEM package designs can range from a kit of parts to a custom enclosed turnkey system you can plug in and turn on.

Flexible built-in I/O for digital and analog sensor interfaces not only keep the size of the system down but also the cost. Various mounting options and compact design features benefit system integration efforts and allow the economy of scale to benefit the budget.

Inexpensive software tools are available for the system sizing, system functions, and commissioning. Operator interface development is offered using standard off-the-self displays, custom designs or external PC based HMI display units.

Industrial Indexing delivers systems guaranteed to meet your specifications with an OEM warranty period lasting 18 months from time of shipment.

Features At a Glance

- Automation Controller (up to four axes control with input for a master device)
- Communication ports (rs232, rs485, USB Serial)
- Computer access to all controller data
- Simple HMI access to program, data and I/O
- Single axis (standalone axis) options
- 100 to 240 Vac input power range
- Digital networked servo and stepper drives
- Analog interface servo and stepper drives
- Control motor torque, speed and/or position
- Power range from 30 watts to 1000 watts
- Speed range to 6000 RPM
- Stepper motors (Sizes Nema 17, Nema 23)
- Digital Inputs, 5 volt or 24 volt DC
- Analog Inputs +/-10 volts, control speed or torque
- Digital Outputs, 5 volt to 24 volt DC
- Analog Outputs +/-10 volts for speed or torque
- PC Development Tools -- Project management, device organization, real time trace, debugging controls, watch windows, and a context sensitive text editor.
- PC Commissioning Tools -- Motor parameter access, live trace of torque and velocity, session storage for fast setup.
- Software and hardware engineering design services for custom form, fit, and function.
- Great for multi-axis actuator systems.
- Use in light industrial, biomedical systems, light sewing systems to provide quiet operation.
- G-code conversion routines for programming coordinated motion sequences.

Additional Technical Reference Material and Software Tools

- Luminary Drives and Motors Technical Manual .......... IB-30B001
- Luminary Controller Technical Manual ....................... IB-30B002
- Luminary Performance and Tuning Software ........ L-Drive v1.0
- Emerald Development Environment (EDE) Tools ........ EDE v4.x
Luminary Digital Servo Drives

Low Cost Drives
The Luminary Series Drive provides the OEM market with a low cost alternative to current stepper or servo control systems. Common hardware platforms and flexible software configurations result in a cost effective high volume manufacturing environment.

Wide Servomotor Range
The versatile drives, LD-330 and the LD-500, are digitally controlled drives designed to run low cost servomotors ranging from 30 to 1000 watts and 0 to 6000 RPM.

Standard Analog Interface
Standard ports for analog input and encoder feedback outputs provide the basic needs of a servomotor drive system providing excellent four quadrant velocity or torque control. Speed regulation to +/- 0.2 rpm and torque regulation to +/- 0.1Nm. Any position controller requiring a +/- 10 volt interface and encoder feedback can be used directly with the LD Series drives. A 2500 line encoder provides +/- .036 degrees of resolution.

Digital Interface Options
Optional interface cards can piggy-back onto the drive to provide unique digital interface schemes. Stock interface cards (outlined on page 17) are available to communicate with the LMC-400 multi-axis controller, to interface with a PC, and to communicate with a PLC over Modbus.

If the standard options cannot fulfill the requirements of an OEM, design services provided by the IIS engineering staff can be contracted to develop a unique option interface card for the LD drive.

Easy Drive Setup
The L-Drive software package for the PC allows easy entry of motor parameters and shows real-time motor response to assist in tuning the servo motor to the load. The motor setup resides on the board giving the board the correct personality for the motor it will control on power up. All parameter entries for the motor can then be backed up as a personality file on your PC. The USB Interface option card is used to connect the LD drive to the L-Drive software tool.
LD-330 and LD-500 Drive Features

- Drive sizes: 3.3 amp or 5 amp RMS continuous.
- +/- 10V analog control input with sinusoidal drive output for smooth velocity or torque control.
- Optional card interface for digital drive communications or custom hardware needs.
- Four inputs, optically isolated, 24Vdc or 5Vdc digital logic
- Two outputs optically isolated, 5-24Vdc, 10ma drive digital logic
- Motor encoder input port -- for 5Vdc (single or differential), quadrature, ABZ/UVW
- Encoder feedback output for interfacing to a position controller or PLC
- Direct line input power with integral power supply, 100 – 240Vac input range.
- Easy setup for various motor and drive configurations

Luminary Servo Drive Overview

Up to 1000 watts of drive power are available for use in a variety of motion applications that require low cost precision control of position, velocity or torque.

A quad encoder (ABZ) output connector (J5) provides motor position data for a positioning controller. With the drive in velocity mode the position controller uses the analog input as the velocity command.

The base configuration for the LD series drive is the ±10 Volt analog interface (J3). Select either velocity or torque mode analog control with input switch (J1-3).

When an OEM requires an all digital control scheme, the digital network interface (J2) is available for our standard option cards or custom engineered option cards tailored to meet the OEM specification.

The LD series output power section (J6) will drive up to a 1000 watt 3-phase brushless motor equipped with an encoder feedback (J4) device.

IIS provides a variety of brushless motors to choose from ranging, from 50 watts to 1000 watts.

The compact design of the LD series features a selection of either 3.3/5.9 or 5.0/9.0 continuous/peak amp versions, each with a bus voltage of up to 315 volts when used with a 220 AC (J8) voltage source.

Custom servo motors are available to meet your torque and speed requirements.

Our stepper series outlined in on page 12 provides a low cost motion control system with all of the programmable features of a servo based system.
Servo Motor Mechanical Specification Chart

Described below are standard motors for the Luminary Series that are, by the most part, in-stock. Motors can be ordered with modifications to meet customer requirements. Armature and encoder feedback connector styles vary depending on motor size. Please reference their corresponding drawing on pages 9 and 11. Additional motors are outlined in the Luminary drive manual IB-30001.

<table>
<thead>
<tr>
<th>Motor Number</th>
<th>Pilot Diameter</th>
<th>Bolt Hole Diameter</th>
<th>Shaft Diameter</th>
<th>Shaft Length</th>
<th>Body Length</th>
<th>Frame Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSM40-050/30E</td>
<td>30</td>
<td>45</td>
<td>5</td>
<td>23</td>
<td>86</td>
<td>40</td>
<td>0.5</td>
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<td>LSM40-100/30E</td>
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<td>45</td>
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<td>27.5</td>
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<td>LSM60-200/30E</td>
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<td>60</td>
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<td>70</td>
<td>12.7</td>
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<td>122</td>
<td>60</td>
<td>1.63</td>
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<td>LSM60-600/30E</td>
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<td>30</td>
<td>144</td>
<td>60</td>
<td>2.0</td>
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<tr>
<td>ESM80C-C1</td>
<td>70</td>
<td>90</td>
<td>16</td>
<td>35</td>
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<td>3.7</td>
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<td>16</td>
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<td>ESM85A-C</td>
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<td>85</td>
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<td>ESM90B-C</td>
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<td>100</td>
<td>14</td>
<td>30</td>
<td>215</td>
<td>90</td>
<td>13</td>
</tr>
</tbody>
</table>

Custom Mechanical Design Examples

- Custom cabling is available. IIS will design, manufacture, and test to your standards. Special speed/torque motor profiles to meet your needs are also available.
- Large frame motors include ruggedized connectors for motor power and feedback cables installed on the motor for easy hook up.
- Custom face mounting, pilots and shafts dimensions to simplify retrofit and upgrade programs. Shown here is the NEMA56 C-face line of servo motors.
Motor/Drive Specification Chart

Selecting the proper motor and drive combination for a motion control application depends on the analysis of the load that is to be driven to its performance goal. A performance goal requires specifics of how far, how fast and how often a given load needs to move. Motion analysis determines the peak and rated horsepower a motor and drive combination needs to produce to perform as required. Proper definition of the load and the actuator design should be as accurate as possible.

With the actuator size and the size of the load defined, the optimum performance will also determine the proper gearing between the motor and the load needed to achieve the goal. Gearing selection is a trade-off between speed and torque at the given horsepower. Varying a belt pulley ratio, lead-screw pitch, roll feed diameter and/or gearbox ratio in the actuator design are examples of gearing analysis that allows the designer to select the motor and drive combination that gives optimum system performance.

<table>
<thead>
<tr>
<th>Motor Number</th>
<th>Recommended Drive</th>
<th>Rated Speed</th>
<th>Max Speed</th>
<th>Rated Torque</th>
<th>Max Torque</th>
<th>Voltage Constant</th>
<th>Torque Constant</th>
<th>Rotor Inertia</th>
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<tbody>
<tr>
<td>LSM40-50/30E</td>
<td>LD-330</td>
<td>3000</td>
<td>5000</td>
<td>0.160</td>
<td>0.480</td>
<td>16</td>
<td>.0265</td>
<td>0.031</td>
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<td>LSM40-100/30E</td>
<td>LD-330</td>
<td>3000</td>
<td>5000</td>
<td>0.320</td>
<td>0.950</td>
<td>33.7</td>
<td>.320</td>
<td>0.030</td>
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<td>LSM60-200/30E</td>
<td>LD-330</td>
<td>3000</td>
<td>4000</td>
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<td>3.78</td>
<td>50.3</td>
<td>.48</td>
<td>0.340</td>
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<tr>
<td>LSM60-400/30E</td>
<td>LD-330</td>
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<td>4000</td>
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<td>.36</td>
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<td>LD-500</td>
<td>3000</td>
<td>4000</td>
<td>1.91</td>
<td>4.17</td>
<td>27.2</td>
<td>.49</td>
<td>1.08</td>
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<td>ESM80C-C1</td>
<td>LD-500</td>
<td>2000</td>
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<td>3.50</td>
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<td>71</td>
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<td>ESM80K-C1</td>
<td>LD-500</td>
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<td>3000</td>
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<td>48</td>
<td>.78</td>
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<tr>
<td>ESM85A-C</td>
<td>LD-330</td>
<td>2000</td>
<td>4000</td>
<td>1.90</td>
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<td>45</td>
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<td>67.1</td>
<td>1.11</td>
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</table>

Notes:
The recommended drive size is selected to give the best motor performance.
Maximum speeds shown reflect a drive input voltage of 220Vac.
Encoder line count of 2500 pulses per rev provides 10000 count/rev resolution.
<table>
<thead>
<tr>
<th>Model</th>
<th>Torque (Nm)</th>
<th>Speed (rpm)</th>
<th>Continuous (rms area)</th>
<th>Intermittent (peak area)</th>
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<tbody>
<tr>
<td>LSM60-200/30E</td>
<td>2.0</td>
<td>0 - 1000</td>
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<td></td>
<td>3000 - 5000</td>
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<td>0.3</td>
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<tr>
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<td></td>
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<td>0.03</td>
<td>0.05</td>
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<td>1.0</td>
<td>1.2</td>
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<tr>
<td></td>
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<td>0.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000 - 3000</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3000 - 5000</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
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<td>0 - 1000</td>
<td>0.5</td>
<td>0.65</td>
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<tr>
<td></td>
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<td>0.15</td>
</tr>
<tr>
<td>LSM40-100/30E</td>
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<td>0 - 1000</td>
<td>0.5</td>
<td>0.65</td>
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<td>0.3</td>
<td>0.4</td>
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<td></td>
<td></td>
<td>3000 - 5000</td>
<td>0.1</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Note: The values specified are for different torque and speed ranges, and the Intermittent (peak area) values are given in (in-lb) units.
LSM40-50/30E

NOTES:
1. SHAFT SEAL STANDARD.
2. MOTOR MAY BE MOUNTED IN ANY ORIENTATION.
3. MOTOR WEIGHT: 0.88 LBS [0.4 KG]

LSM40-100/30E

NOTES:
1. THRUST LOAD  12 KG [26 LBS].
2. RADIAL LOAD  71 KG [157 LBS].
3. ENCODER 2500 LINE COUNT.
4. IP-55 SEALING.
5. MOTOR WEIGHT: 2 KG [4.4 LBS].

Length: YYY

<table>
<thead>
<tr>
<th>Watts</th>
<th>in</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>4.99</td>
<td>102</td>
</tr>
<tr>
<td>400</td>
<td>5.39</td>
<td>122</td>
</tr>
<tr>
<td>600</td>
<td>6.00</td>
<td>144</td>
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</table>
Feedback and power cables

ESM80K-C1  ESM80C-C1

Consult factory for other cable options.

ESM85x-C

NOTES:

1.) THRUST LOAD 12 KG [26 LBS].
2.) RADIAL LOAD 71 KG [157 LBS].
3.) ENCODER 2500 LINE COUNT.
4.) IP-65 SEALING.
5.) MOTOR SHAFT SEAL IS STANDARD.

Motor Shaft Dimensions

Consult factory for other cable options.

ESM80C-C1, ESM80K-C1

Motor Shaft Dimensions

Consult factory for other cable options.

ESM85x-C
**Stepper Motors and Drives**

**Versatile Drive Interface**
Designed with the OEM in mind, the Luminary Series Stepper drive packs a full complement of interface options. Analog velocity and torque control, digital encoder feedback, and digital input and output control points provide flexible design options needed by the OEM.

**Stepper Motors with Servo Performance**
By using integral encoder feedback, no loss of shaft position under peak torque conditions and quiet operation are true benefits when applied in many environments.

**Full Control for Less Cost**
This stepper drive and motor combination, when networked with the LMC-400 controller, gains the standard Emerald Motion Language and the EDE software tool kit providing electronic cam motion, electronic gearing and programmable limit switch outputs for synchronized and coordinated motion profiles.
### Mechanical Specifications

<table>
<thead>
<tr>
<th>Motor Number</th>
<th>Pilot Diameter C</th>
<th>Bolt Hole E</th>
<th>Shaft Diameter S</th>
<th>Shaft Length F</th>
<th>Body Length L</th>
<th>Frame Size B</th>
<th>Max Temperature</th>
<th>Weight</th>
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<td>5</td>
<td>24</td>
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<td>38.1</td>
<td>47.1</td>
<td>6.35</td>
<td>21</td>
<td>90</td>
<td>57</td>
<td>50°C</td>
<td>1.1</td>
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<td>LPM-N23-3R0A382</td>
<td>38.1</td>
<td>47.1</td>
<td>6.35</td>
<td>21</td>
<td>90</td>
<td>57</td>
<td>50°C</td>
<td>1.1</td>
</tr>
</tbody>
</table>

### Speed vs. Torque Curves

**LPM-N17-1R3A030**

- Torque (Nm): 0.00 to 1.25
- Speed (rpm): 0 to 300
- Operating area: 0.00 to 1.00 Nm

**LPM-N23-2R8A270**

- Torque (Nm): 0.00 to 1.25
- Speed (rpm): 0 to 350
- Operating area: 0.00 to 1.00 Nm

**LPM-N23-3R0A382**

- Torque (Nm): 0.00 to 1.25
- Speed (rpm): 0 to 250
- Operating area: 0.00 to 1.00 Nm
Luminary Automation Controller - LMC-400

Multi-Axis Servo Control Capability
The LMC-400 Luminary Automation Controller features multi-axis capability to control four Luminary Series drives and provide access to 36 I/O points. The LMC-400 features a master encoder input bus and four drive ports for synchronized motion and coordinated I/O. Touchscreens, ASCII terminals, or a PC can connect to one of two serial ports for operator interaction or remote access control.

Versatile Automation Controller
Designed with the OEM in mind, the Luminary Series packs a full feature list of control capabilities into a low cost hardware platform. In most cases, after discovering the versatility of the Luminary Series, an OEM can realize additional cost savings by integrating other existing logic functionally into the IIS Luminary Series System.

Comprehensive Software Integration
Program the LMC-400 with the standard Emerald Motion Language using the EDE software development tools. With over 35 years of motion control experience behind the EDE tools, IIS provides the OEM a complete menu driven project management consisting of servo motors, external devices, input and output hardware switches and sensors. The EDE tools include content-sensitive text editing, code tracing and watch windows.

Full Control for Less Cost
Using the LMC-400 automation controller, one can setup electronic cam motion, electronic gear ratio functions and programmable limit/drum switch control to run as high priority synchronized background tasks. Deterministic motion bus, subroutine mapping to an interrupt manager, and access to user memory through the serial port provides the real-time environment for a flexible system with consistent results.

LMC-400 Controller Features
✓ Four port drive network hub -- Each port Interfaces to an LCSD option card installed on the LD drive module.
✓ Eight general purpose digital inputs and four digital outputs, 24Vdc logic, optically isolated
✓ Digital inputs can also be configured for special use as a master encoder input, registration marker input and position capture functions.
✓ All outputs can be controlled separately or synchronized to a master axis and configured as programmable limit switches.
✓ Structured text programming using (EML) Emerald Motion Language provides integer, floating point, strings, arrays, full motion functions for indexing, positioning, gear ratio, and to create versatile electronic cam arrays.
✓ Full control of interrupts which can be tagged to any digital input or output, status flag, or timer flag transitions.
✓ USB Serial (Port1) as the software development port.
✓ RS-232 Serial (Port2) for ASCII terminals and touchscreens.
✓ Line input power: 100 – 240Vac input range.
Automation Network for Luminary Drives

The four axis hub on the LMC-400 provides digital control of position, velocity, and torque for brushless motors driven by the LD drive. The LD servo and stepper drives connect to the LMC-400 with a Cat5 type cable.

High performance motion sequencing between multiple axis is programmed using the EDE development software and the EML language. The EML is a “Basic like” motion control language structure built on real-time operating system providing a vast motion control library designed for automation.

When the LD drive connects to the network all digital and analog I/O points on the LD drives are available to your application program. The general purpose inputs and outputs can also be configured for real-time interrupt control of subroutine execution or as programmable limit switches that can be synchronized to any shaft in the system.

Multi-Axis Real-Time Programming

The Emerald Development Environment (EDE) provides project management utilizing system component configuration windows to manage all the drives, I/O devices and files used in an automation system.

The EDE program code editor is content sensitive and easy to use. The Emerald Motion Language (EML) is a straight forward language that uses a standard structure with mature functions tailored to all the real-time aspects of motion control.

EDE provides a debugging window for program development support. Watch data values, trace the program flow and view network device status in real-time. Remote PC access allows world-wide support from our team of engineers minimizing costly travel expenses.
From Design Concept to Reality
Let IIS work with your concepts and design a cost effective system to meet your performance goals.

By keeping motor and drive assemblies close together, motor and feedback cable lengths are kept to a minimum.

Custom LMC-400 controller assembly housed in an enclosure integrating the OEM power supply requirements

Custom LMC-400 controller assembly designed to include additional power supply management requirements for the LD drives.
**Digital Interface Option**

Besides the built-in analog input and encoder output ports, the LD drives will also accept an interface card for custom requirements.

Tailored to the OEM needs for special network connectivity or motion control functionally, the interface card is designed and built to the OEM’s exact specifications. Option cards, customized for the OEM, are installed onto the LD drive to provide a variety of connectivity solutions.

The LD-drive unit shown at the right shows the digital drive network option installation used to connect to the LMC-400 multi-axis automation controller hub.

Option cards described below show other available options as standard products.

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**Analog output option card for the LD drive**

Monitor either motor speed or motor torque with an option card for an analog output. The LDAA-001 card provides a standard +10 / -10 voltage output and a dual 12 vdc supply. The supply is limited to 20 ma but can be used has an isolated source for the digital input interface.

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**USB Serial interface card for the LD Drive**

Use the LD-USB option for Modbus serial communication over USB as a PC link to the LD drive interface port. Use with the L-Drive PC based setup and commissioning software for the LD drive. The L-Drive software allows setting motor and drive parameters along with monitoring features providing speed-vs-time and torque-vs-time graphs displaying motor responses in real-time on your PC.

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**RS485 Serial interface card for the LD Drive**

For connections to the digital LD drive functions you can also use the RS485 option card, LD-485. Using simple twisted pair wire, the LD-485 will connect as point-to-point, multi-dropped or multi-point network of 1 to 16 drives. Modbus RTU protocol with half-duplex or full duplex configurations, provide real time read/write access to all 16 bit and 32 bit register values on the LD drive.
System Configurations

For an operator interface the Maple systems has direct connectivity to the LMC -400 Multi-Axis Controller. Other options include the Windows CE based displays or custom designs using Visual Basic, C++, or C# on the an embedded PC.

Custom cables, actuator assemblies, and special mounting requests are provided.

Two axis 1200mm actuator design provides high speed and precise rotational and linear motion on a mandrel system.

IIS will specify actuators, motor sizing, and software design for turn-key motion control systems.

Custom hardware designs are available to provide a form-to-fit requirement.
Mounting Configurations

Standard mounting plates provide a heat sink for the LD drive and are available as stock items. To keep costs down, mounting the LD drive directly to your panel of the appropriate heat dissipation material is also an option.

Mounting plate hole dimensions to accommodate both the LD drive and the LMC-400 controller.

LD drive attached to a standard flat mounting plate

Right angle mounting plate showing the LMC-400 controller

Custom Systems

IIS provides system design services integrating enclosures or panel assemblies for single-axis or multi-axis systems to meet your packaging requirements. Pictured here is a one axis velocity control system mounted in a stainless steel 12”x12”x 8” cabinet for the biomedical industry. This turn-key product development involved a custom operator interface and custom control software.
Luminary Drive ~ LD-330/SE21

Luminary Controller ~ LMC-400-21
Luminary Drive Ordering Guide

**Rated Current** ~ Two versions are available to drive a servo motor and one version for the stepper motor. Choose which version based on the size of the motor that you need to drive and the price point you need.

**Drive I/O Voltage** ~ Connections to the digital i/o points are offered for either 5 Vdc or 24 Vdc operation.

**Motor Feedback** ~ An encoder is the only feedback device interface currently offered on the Luminary Series. The servo encoder used must provide six channels of data where as the stepper encoder needs only three. Channels A and B for shaft resolution, the Z channel for marking the shaft’s zero position, and channels U, V, W for winding commutation on the servo encoder. The Luminary drives will accept either differential or single ended channel line drivers. Quadrature multiplication is provided on the A and B channels to increase the shaft resolution to four times the line count of the encoder.

**Mounting Style** ~ Drives can be mounted in the horizontal orientation or vertical orientation. Mounting brackets are part of the cooling system, but to save costs can be substituted by mounting the drive to a proper heat sink surface.

**Option Cards** ~ The Luminary drive provides an option interface connector allowing the design of custom capabilities that require addition hardware. A variety of options are currently available. Select an interface from our list or let IIS design one for you. When two cards can be mounted, the secondary option identifies the second card.

**Functional Configuration** ~ A motor’s characteristics are documented in the drive’s configuration file. Configurations allow the drive to properly control the motor’s operation and apply limits to the torque-speed boundary. Servo gain adjustments, that affect the motor’s response under load, are also stored in the configuration file.

The configuration file for a stand-alone analog drive is loaded into the drive at the time of manufacture and verified. Parameters can be changed in the field through one of the communication options cards using the L-Drive software program. In the special case where the LMC-400 Controller is used with option card “C” installed on the drive, no motor configuration files are loaded at the factory, but are stored on the LMC-400 controller and loaded on power up.

**Special Options** ~ Calls out any other OEM special design request.

LMC Controller Ordering Guide

LMC-400-21  ~ Luminary Controller (4-Axis) mounted on a right angle plate.

~ Interfaces with drive option card “C” using the C-885yyy cable.
**Motor Ordering Guide**

**Variations** ~ Shaft size, pilot configurations, or motor construction

**Rated Speed** ~ Speed at which the motor will perform while providing its rated torque

**Feedback Type** ~ An encoder is the only feedback device interface currently offered

**Rated Power** ~ Torque and speed combination motor can provide

**Flange Size** ~ Mounting face’s overall size, Refer to motor’s specification drawing for mounting details

**Motor Series** ~ The Luminary series drives will power either Luminary series or the Emerald series of motors

**Custom Motors** ~ Industrial Indexing Systems will develop Luminary drive configurations that are engineered to operate with numerous motor designs. Motor types range from AC synchronous to DC brush types. Numerous feedback devices, coupled with custom mounts to match a customer’s exact requirements, assures reliable system performance.
**Ordering Guide**

**Cable Selection Guide**

<table>
<thead>
<tr>
<th>Cable</th>
<th>Drive Option</th>
<th>Interface</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-885YYY</td>
<td>C</td>
<td>LDCA-002</td>
<td>LMC Automation Controller</td>
</tr>
<tr>
<td>C-894YYY</td>
<td>D</td>
<td>LDUSB-01</td>
<td>PC for commissioning</td>
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<tr>
<td>25.320.3653.1</td>
<td>F</td>
<td>LD485-01</td>
<td>PLC network communication</td>
</tr>
<tr>
<td>LIC-XBBMMM</td>
<td>A</td>
<td>LDAA-001</td>
<td>Analog Output</td>
</tr>
</tbody>
</table>

**Stock Luminary cables** assembled and cut to length.

- **Cable Length**
  - Metric Specification
    - mm - two digit value,
    - d - multiplier; 0 is 0.1, 1 is 1.0, 2 is 10
    - (e.g. 300 is 0.30 meters; 601 is 6.0 meters)
- **Material Configuration**
  - See cable drawings configuration of connectors and types of cable
- **Cable Type**
  - Luminary specific cable drawing
  - LAC - Motor Armature Cable
  - LEC - Motor Encoder Cable
  - LIC - Interface Cable
  - LPAC - Stepper Armature Cable
  - LPEC - Stepper Encoder Cable

**Cable connector packages**

- LC-CONKIT Connector Kit for LMC-400 I/O
- LD-CONKIT-MTR Connector Kit for Motor Cables
- LD-CONKIT-I/O Connector Kit for Drive I/O

**Communication cables**

- C-849YYY** USB-A to USB-B Comm Cable
- C-885YYY LMC Network Cable
- C-886YYY LD/LMC Power Cable
- C-776YYY Setup Configuration Cable
- C-987YYY Serial Communications Cable
- C-822000 PC Adapter Connector (9 pin)

**YY** is length in feet

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*Reference manual IB-30B001 for stock cable details.*

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Team IIS

Our objective is to bring state-of-the-art servo system products to practical use on the factory floor. Whether it is a complete turnkey system or servo components, IIS’ commitment to quality products and personalized support is unsurpassed. Our business philosophy is pretty simple. We take responsibility for everything we sell. By doing that we make a long-term commitment to our customers’ success.

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Our Emerald Technology line of products features 32 axis controllers and servo motor power ranging from 30 watts to 50,000 watts.