AC Servo Motor Driver

Series LECS\[\]

Series LECSA (Pulse Input Type/Positioning Type)

- Incremental Type
- Up to 7 positioning points by point table
- Input type: Pulse input
- Control encoder: Incremental 17-bit encoder (Resolution: 131072 pulse/rev)
- Parallel input: 6 inputs
  output: 4 outputs

Series LECSB (Pulse Input Type)

- Input type: Pulse input
- Control encoder: Absolute 18-bit encoder (Resolution: 262144 pulse/rev)
- Parallel input: 10 inputs
  output: 6 outputs

Series LECSC (CC-Link Direct Input Type)

- Absolute Type
- Position data/speed data setting and operation start/stop
- Positioning by up to 255 point tables (when 2 stations occupied)
- Up to 32 drivers connectable (when 2 stations occupied)
  with CC-Link communication
- Applicable Fieldbus protocol: CC-Link (Ver. 1.10, max. communication speed: 10 Mbps)
- Control encoder: Absolute 18-bit encoder (Resolution: 262144 pulse/rev)

Series LECSS (SSCNET III Type)

- Compatible with Mitsubishi Electric’s servo system
- Reduced wiring and SSCNET III optical cable for one-touch connection
- SSCNET III optical cable provides enhanced noise resistance
- Up to 16 drivers connectable with SSCNET III communication
- Applicable Fieldbus protocol: SSCNET III
  (High-speed optical communication, max. bidirectional communication speed: 100 Mbps)
- Control encoder: Absolute 18-bit encoder (Resolution: 262144 pulse/rev)
### Incremental encoder compatible Series LECSA

(Pulse input type/Positioning type)

**Supply by customer**

**Power supply**
- Single phase 100 to 120 VAC (50/60 Hz)
- 200 to 230 VAC (50/60 Hz)

**Regeneration option**
- Part no.: LEC-MR-RB-

**Motor cable**
- Standard cable: LE-CSR-S
- Robotic cable: LE-CSR-R

**Lock cable**
- Standard cable: LE-CSR-B-S
- Robotic cable: LE-CSR-B-R

**Electric actuators**
- Rod type
- Series LEY

**Encoder cable**
- Standard cable: LE-CSE-S
- Robotic cable: LE-CSE-R

**Main circuit power supply connector** (Accessory)

**Driver**

**Control circuit power supply**
- 24 VDC

**Control circuit power supply connector** (Accessory)

**USB cable**
- Part no.: LEC-MR-J3USB

**Setup software**
- (MR Configurator™)
- Part no.: LEC-MR-SETUP221

*Order USB cable (Part no.: LEC-MR-J3USB) separately to use this software.*

**I/O connector**
- Part no.: LE-CSNA

**Power supply for I/O signal**
- 24 VDC

### Absolute encoder compatible Series LECSB

(Pulse input type)

**Supply by customer**

**Power supply**
- Single phase 100 to 120 VAC (50/60 Hz)
- 200 to 230 VAC (50/60 Hz)
- Three phase 200 to 230 VAC (50/60 Hz)

**Regeneration option**
- Part no.: LEC-MR-RB-

**Motor cable**
- Standard cable: LE-CSR-S
- Robotic cable: LE-CSR-R

**Lock cable**
- Standard cable: LE-CSR-B-S
- Robotic cable: LE-CSR-B-R

**Electric actuators**
- Rod type
- Series LEY

**Encoder cable**
- Standard cable: LE-CSE-S
- Robotic cable: LE-CSE-R

**Main circuit power supply connector** (Accessory)

**Driver**

**Control circuit power supply**
- 24 VDC

**Control circuit power supply connector** (Accessory)

**Motor connector** (Accessory)

**I/O connector**
- Part no.: LE-CSNB

**Analog monitor output**
- RS-422 communication

**USB cable**
- Part no.: LEC-MR-J3USB

**Setup software**
- (MR Configurator™)
- Part no.: LEC-MR-SETUP221

*Order USB cable (Part no.: LEC-MR-J3USB) separately to use this software.*

**Power supply for I/O signal**
- 24 VDC

**PLC (Positioning unit)**
System Construction

**Series LECS**

### Absolute encoder compatible Series LECS

**(CC-Link direct input type)**

**Supplied by customer**

- **Power supply**
  - Single phase 100 to 120 VAC (50/60 Hz)
  - 200 to 230 VAC (50/60 Hz)
  - Three phase 200 to 230 VAC (50/60 Hz)

**Option**

- **Regeneration option**
  - Part no.: LEC-MR-RB-

**Motor cable**

- Standard cable: LE-CSM-S
- Robotic cable: LE-CSM-R

**Lock cable**

- Standard cable: LE-CSB-S
- Robotic cable: LE-CSB-R

**Electric actuator**

**Encoder cable**

- Standard cable: LE-CSE-S
- Robotic cable: LE-CSE-R

**Driver**

- Main circuit power supply connector (Accessory)

**Control circuit power supply connector (Accessory)**

- Option

**Motor connector (Accessory)**

**Battery (Accessory)**

**Setup software**

- (MR Configurator™)
  - Part no.: LEC-MR-SETUP221

**USB cable**

- Part no.: LEC-MR-J3USB

**CC-Link connector (Accessory)**

**I/O connector**

- Part no.: LE-CSNA

**PC**

**PLC**

- (CC-Link master unit)
  - Power supply for I/O signal
  - 24 VDC

**_option**

**System Construction Series LECS**

### Absolute encoder compatible Series LECSS

**(SSCNET III type)**

**Supplied by customer**

- **Power supply**
  - Single phase 100 to 120 VAC (50/60 Hz)
  - 200 to 230 VAC (50/60 Hz)
  - Three phase 200 to 230 VAC (50/60 Hz)

**Option**

- **Regeneration option**
  - Part no.: LEC-MR-RB-

**Motor cable**

- Standard cable: LE-CSM-S
- Robotic cable: LE-CSM-R

**Lock cable**

- Standard cable: LE-CSB-S
- Robotic cable: LE-CSB-R

**Electric actuator**

**Encoder cable**

- Standard cable: LE-CSE-S
- Robotic cable: LE-CSE-R

**Driver**

- Main circuit power supply connector (Accessory)

**Control circuit power supply connector (Accessory)**

**Motor connector (Accessory)**

**Battery (Accessory)**

**Setup software**

- (MR Configurator™)
  - Part no.: LEC-MR-SETUP221

**USB cable**

- Part no.: LEC-MR-J3USB

**CC-Link connector (Accessory)**

**I/O connector**

- Part no.: LE-CSNS

**SSCNET III optical cable**

- Part no.: LE-CSS-

**PLC**

- (Positioning unit/Motion controller)
  - Power supply for I/O signal
  - 24 VDC

**option**
How to Order

Driver

LECS A 1 - S1

Driver type

A  Pulse input type/Positioning type (For incremental encoder)
B  Pulse input type (For absolute encoder)
C  CC-Link direct input type (For absolute encoder)
S  SSCNET III type (For absolute encoder)

Power supply voltage

1  100 to 120 VAC, 50/60 Hz
2  200 to 230 VAC, 50/60 Hz

Compatible motor type

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Capacity</th>
<th>Encoder</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>AC servo motor (S2)</td>
<td>100 W</td>
<td>Incremental</td>
</tr>
<tr>
<td>S3</td>
<td>AC servo motor (S3)</td>
<td>200 W</td>
<td></td>
</tr>
<tr>
<td>S4*1</td>
<td>AC servo motor (S4)</td>
<td>400 W</td>
<td></td>
</tr>
<tr>
<td>S5</td>
<td>AC servo motor (S6)</td>
<td>100 W</td>
<td></td>
</tr>
<tr>
<td>S7</td>
<td>AC servo motor (S7)</td>
<td>200 W</td>
<td>Absolute</td>
</tr>
<tr>
<td>S8*1</td>
<td>AC servo motor (S8)</td>
<td>400 W</td>
<td></td>
</tr>
</tbody>
</table>

*1 Not applicable for Series LEY

Dimensions

LECSA

2 x ø6 Mounting hole
(Bearing surface thickness 5)

LECSB

ø6 Mounting hole
(Bearing surface thickness 4)

Connector name Description

| CN1 | I/O signal connector |
| CN2 | Encoder connector |
| CN3 | USB communication connector |
| CN4 | Battery connector |
| CN5 | USB communication connector |
| CN6 | Analog monitor connector |
| CNP1 | Main circuit power supply connector |
| CNP2 | Control circuit power supply connector |
| CNP3 | Servo motor power connector |
### Dimensions

**LECSS**

- **CN1**: CC-Link connector
- **CN2**: Encoder connector
- **CN3**: RS-422 communication connector
- **CN4**: Battery connector
- **CN5**: USB communication connector
- **CN6**: I/O signal connector
- **CNP1**: Main circuit power supply connector
- **CNP2**: Control circuit power supply connector
- **CNP3**: Servo motor power connector

**LECS**

- **CN1A**: Front axis connector for SSCNET III optical cable
- **CN1B**: Rear axis connector for SSCNET III optical cable
- **CN2**: Encoder connector
- **CN3**: I/O signal connector
- **CN4**: Battery connector
- **CN5**: USB communication connector
- **CNP1**: Main circuit power supply connector
- **CNP2**: Control circuit power supply connector
- **CNP3**: Servo motor power connector

*Battery included.*
### Specifications

#### Series LECSA

<table>
<thead>
<tr>
<th>Model</th>
<th>LECSA1-S1</th>
<th>LECSA1-S3</th>
<th>LECSA2-S1</th>
<th>LECSA2-S3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compatible motor capacity [W]</strong></td>
<td>100</td>
<td>200</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td><strong>Compatible encoder</strong></td>
<td>Incremental 17-bit encoder (Resolution: 131072 pulse/rev)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power voltage [V]</strong></td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Single phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable voltage fluctuation [V]</strong></td>
<td>Single phase 85 to 132 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated current [A]</strong></td>
<td>3.0</td>
<td>5.0</td>
<td>1.5</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Control power supply voltage [V]</strong></td>
<td>24 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable voltage fluctuation [V]</strong></td>
<td>21.6 to 26.4 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated current [A]</strong></td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parallel input</strong></td>
<td>6 inputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parallel output</strong></td>
<td>4 outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. input pulse frequency [pps]</strong></td>
<td>1 M (when differential receiver), 200 k (when open collector)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>In-position range setting [pulse]</strong></td>
<td>0 to ±65535 (Command pulse unit)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Error excessive</strong></td>
<td>±3 rotations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Torque limit</strong></td>
<td>Parameter setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Setting communication</strong></td>
<td>USB communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>32 to 131°F (0 to 55°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage temperature range</strong></td>
<td>–4 to 149°F (–20 to 65°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insulation resistance [MΩ]</strong></td>
<td>Between case and SG: 10 (500 VDC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>21.2 oz (600 g)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Series LECSB

<table>
<thead>
<tr>
<th>Model</th>
<th>LECSB1-S5</th>
<th>LECSB1-S7</th>
<th>LECSB2-S5</th>
<th>LECSB2-S7</th>
<th>LECSB2-S8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compatible motor capacity [W]</strong></td>
<td>100</td>
<td>200</td>
<td>100</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td><strong>Compatible encoder</strong></td>
<td>Absolute 18-bit encoder (Resolution: 262144 pulse/rev)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power voltage [V]</strong></td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Three phase 200 to 230 VAC (50/60 Hz)</td>
<td>Single phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable voltage fluctuation [V]</strong></td>
<td>Single phase 85 to 132 VAC</td>
<td>Three phase 170 to 253 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated current [A]</strong></td>
<td>3.0</td>
<td>5.0</td>
<td>0.9</td>
<td>1.5</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Control power supply voltage [V]</strong></td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Single phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowable voltage fluctuation [V]</strong></td>
<td>Single phase 85 to 132 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated current [A]</strong></td>
<td>0.4</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parallel input</strong></td>
<td>10 inputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parallel output</strong></td>
<td>6 outputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. input pulse frequency [pps]</strong></td>
<td>1 M (when differential receiver), 200 k (when open collector)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>In-position range setting [pulse]</strong></td>
<td>0 to ±10000 (Command pulse unit)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Error excessive</strong></td>
<td>±3 rotations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Torque limit</strong></td>
<td>Parameter setup or external analog input setup (0 to 10 VDC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Setting communication</strong></td>
<td>USB communication, RS422 communication¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>32 to 131°F (0 to 55°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage temperature range</strong></td>
<td>–4 to 149°F (–20 to 65°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insulation resistance [MΩ]</strong></td>
<td>Between case and SG: 10 (500 VDC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>28.2 oz (800 g)</td>
<td>35.3 oz (1000 g)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*¹ USB communication and RS422 communication cannot be performed at the same time.
## Specifications

### Series LECSC

<table>
<thead>
<tr>
<th>Model</th>
<th>LECSC1-S5</th>
<th>LECSC1-S7</th>
<th>LECSC2-S5</th>
<th>LECSC2-S7</th>
<th>LECSC2-S8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible motor capacity [W]</td>
<td>100</td>
<td>200</td>
<td>100</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Compatible encoder</td>
<td>Absolute 18-bit encoder (Resolution: 262144 pulse/rev)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power voltage [V]</td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Three phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowable voltage fluctuation [V]</td>
<td>Single phase 85 to 132 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current [A]</td>
<td>3.0</td>
<td>5.0</td>
<td>0.9</td>
<td>1.5</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Control power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control power supply voltage [V]</td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Single phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowable voltage fluctuation [V]</td>
<td>Single phase 85 to 132 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current [A]</td>
<td>0.4</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication specifications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable Fieldbus protocol (Version)</td>
<td>CC-Link communication (Ver. 1.10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection cable</td>
<td>CC-Link Ver. 1.10 compliant cable (Shielded 3-core twisted pair cable) *1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote station number</td>
<td>1 to 64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable length</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication speed [bps]</td>
<td>16 k</td>
<td>625 k</td>
<td>2.5 M</td>
<td>5 M</td>
<td>10 M</td>
</tr>
<tr>
<td>Max. overall cable length [m]</td>
<td>1200</td>
<td>900</td>
<td>400</td>
<td>160</td>
<td>100</td>
</tr>
<tr>
<td>Cable length between stations [m]</td>
<td>0.2 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/O occupation area (Inputs/Outputs)</td>
<td>1 station occupied (Remote I/O 32 points/32 points)/(Remote register 4 words/4 words)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 stations occupied (Remote I/O 64 points/64 points)/(Remote register 8 words/8 words)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of connectable drivers</td>
<td>Up to 42 (when 1 station is occupied by 1 driver), Up to 32 (when 2 stations are occupied by 1 driver), when there are only remote device stations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remote register input</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available with CC-Link communication (2 stations occupied)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Command method</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point table No. input</td>
<td>Available with CC-Link communication, RS-422 communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC-Link communication (1 station occupied): 31 points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC-Link communication (2 stations occupied): 255 points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS-422 communication: 255 points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indexer positioning input</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available with CC-Link communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC-Link communication (1 station occupied): 31 points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC-Link communication (2 stations occupied): 255 points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Setting communication</strong></td>
<td>USB communication, RS422 communication *2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>32 to 131°F (0 to 55°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage temperature range</strong></td>
<td>–4 to 149°F (–20 to 65°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insulation resistance [MΩ]</strong></td>
<td>Between case and SG: 10 (500 VDC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>28.2 oz (800 g)</td>
<td>35.3 oz (1000 g)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 If the system comprises of both CC-Link Ver. 1.00 and Ver. 1.10 compliant cables, Ver. 1.00 specifications are applied to the cable extensions and the cable length between stations.

*2 USB communication and RS-422 communication cannot be performed at the same time.
## Specifications

### Series LECSS

<table>
<thead>
<tr>
<th>Model</th>
<th>LECSS1-S5</th>
<th>LECSS1-S7</th>
<th>LECSS2-S5</th>
<th>LECSS2-S7</th>
<th>LECSS2-S8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compatible motor capacity [W]</strong></td>
<td>100</td>
<td>200</td>
<td>100</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td><strong>Compatible encoder</strong></td>
<td>Absolute 18-bit encoder (Resolution: 262144 pulse/rev)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power voltage [V]</td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Three phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowable voltage fluctuation [V]</td>
<td>Single phase 85 to 132 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current [A]</td>
<td>3.0</td>
<td>5.0</td>
<td>0.9</td>
<td>1.5</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Control power supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control power supply voltage [V]</td>
<td>Single phase 100 to 120 VAC (50/60 Hz)</td>
<td>Single phase 200 to 230 VAC (50/60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Allowable voltage fluctuation [V]</td>
<td>Single phase 85 to 132 VAC</td>
<td>Single phase 170 to 253 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current [A]</td>
<td>0.4</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Applicable Fieldbus protocol</strong></td>
<td>SSCNET III (High-speed optical communication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Setting communication</strong></td>
<td>USB communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>32 to 131°F (0 to 55°C) (No freezing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating humidity range [%RH]</strong></td>
<td>90 or less (No condensation)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage temperature range</strong></td>
<td>–4 to 149°F (–20 to 65°C) (No freezing)</td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insulation resistance [MΩ]</strong></td>
<td>Between case and SG: 10 (500 VDC)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>28.2 oz (800 g)</td>
<td>35.3 oz (1000 g)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Power Supply Wiring Example: LECSA

LECSA/L52408

Terminal name | Function | Details
---|---|---
| L1 | Main circuit power supply | Connect the main circuit power supply. LECSA1: Single phase 100 to 120 VAC, 50/60 Hz LECSA2: Single phase 200 to 230 VAC, 50/60 Hz
| L2 | Regeneration option | Terminal to connect regeneration option LECSA/L52408-S1: No need for connection LECSA/L52408-S3, S4: Connected at time of shipping.
| P | Protective earth (PE) | Should be grounded by connecting the servo motor's earth terminal and the control panel's protective earth (PE).
| C | Connect to motor cable (U, V, W) |
| U | Servo motor power (U) |
| V | Servo motor power (V) |
| W | Servo motor power (W) |

Main Circuit Power Supply Connector: CNP1

Control Circuit Power Supply Connector: CNP2

Terminal name | Function | Details
---|---|---
| 24V | Control circuit power supply (24 V) | 24 V side of the control circuit power supply (24 VDC) which supplies the driver.
| 0V | Control circuit power supply (0 V) | 0 V side of the control circuit power supply (24 VDC) which supplies the driver.

Main circuit power supply
Single phase 200 to 230 VAC
or
Single phase 100 to 120 VAC

Control circuit power supply
24 VDC

Motor
Detector

Circuit protector

CNP1
CNP2
## Main Circuit Power Supply Connector: CNP1

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
<th>Details</th>
</tr>
</thead>
</table>
| L1       | Main circuit power supply | Connect the main circuit power supply.  
LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz  
Connection terminal: L1, L2  
LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz  
Connection terminal: L1, L2  
Three phase 200 to 230 VAC, 50/60 Hz  
Connection terminal: L1, L2 |
| L2       |                   | Do not connect.                                                         |
| L3       |                   | Connect between P1 and P2. (Connected at time of shipping.)             |
| N        |                   |                                                                         |
| P1       |                   |                                                                         |
| P2       |                   |                                                                         |

## Control Circuit Power Supply Connector: CNP2

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
<th>Details</th>
</tr>
</thead>
</table>
| P        | Regeneration option | Connect between P and D. (Connected at time of shipping.)  
* If regeneration option is required for "Model Selection", connect to this terminal. |
| C        |                   |                                                                         |
| D        |                   |                                                                         |
| L11      | Control circuit power supply | Connect the control circuit power supply.  
LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz  
Connection terminal: L1, L2  
LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz  
Connection terminal: L1, L2  
Three phase 200 to 230 VAC, 50/60 Hz  
Connection terminal: L1, L2 |
| L21      |                   |                                                                         |

## Motor Connector: CNP3

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>Servo motor power (U)</td>
<td>Connect to motor cable (U, V, W)</td>
</tr>
<tr>
<td>V</td>
<td>Servo motor power (V)</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Servo motor power (W)</td>
<td></td>
</tr>
</tbody>
</table>
Control Signal Wiring Example: LECSA

This wiring example shows connection with a PLC (FX3U-□□□MT/ES) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSA operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.

Note 1) For preventing electric shock, be sure to connect the driver circuit power supply connector (CNP1)’s protective earth (PE) terminal to the control panel’s protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 200 mA using an external source. 200 mA is the value when all I/O command signals are used and reducing the number of inputs/outputs can decrease current capacity. Refer to “Operation Manual” for required current for interface.

Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) For command pulse input with an open collector method. When a positioning unit loaded with a differential line driver method is used, it is 10 m or less.

Note 1) For preventing electric shock, be sure to connect the driver circuit power supply connector (CNP1)’s protective earth (PE) terminal to the control panel’s protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 200 mA using an external source. 200 mA is the value when all I/O command signals are used and reducing the number of inputs/outputs can decrease current capacity. Refer to “Operation Manual” for required current for interface.

Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) For command pulse input with an open collector method. When a positioning unit loaded with a differential line driver method is used, it is 10 m or less.
This wiring example shows connection with a positioning unit (QD75D) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSB operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.

**Control Signal Wiring Example: LECSB**

Note 1) For preventing electric shock, be sure to connect the driver’s protective earth (PE) terminal to the control panel’s protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 300 mA using an external source.

Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.

**Series LECS**
Note 1) For preventing electric shock, be sure to connect the driver’s protective earth (PE) terminal (marked ) to the control panel’s protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 150 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.
Control Signal Wiring Example: LECS

1) For preventing electric shock, be sure to connect the driver’s protective earth (PE) terminal (marked *) to the control panel’s protective earth (PE).

2) For interface use, supply 24 VDC ±10% 150 mA using an external source.

3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

4) The same name signals are connected inside the driver.

5) Use the following SSCNET III optical cables. Refer to “SSCNET III optical cable” on page 15 for cable models.

6) Connections from Axis 2 onward are omitted.

7) Up to 16 axes can be set.

8) Be sure to place a cap on unused CN1A/CN1B.

Note 1) For preventing electric shock, be sure to connect the driver’s protective earth (PE) terminal (marked *) to the control panel’s protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 150 mA using an external source.

Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) Use the following SSCNET III optical cables. Refer to “SSCNET III optical cable” on page 15 for cable models.

Note 6) Connections from Axis 2 onward are omitted.

Note 7) Up to 16 axes can be set.

Note 8) Be sure to place a cap on unused CN1A/CN1B.
Options

Motor cable, Lock cable, Encoder cable (LECS/L52408 common)

**LE – CS**

- Motor type:
  - S: AC servo motor

- Cable description:
  - M: Motor cable
  - B: Lock cable
  - E: Encoder cable

- Direction of connector:
  - A: Axis side
  - B: Counter axis side

- Cable length (L) [m]
  - M: 2
  - B: 5
  - E: 10

- Cable type:
  - S: Standard cable
  - R: Robotic cable

---

* LE-CSM-□□ is MR-PWS1CBLM-A□□ manufactured by Mitsubishi Electric.
* LE-CSB-□□ is MR-BKS1CBLM-A□□ manufactured by Mitsubishi Electric.
* LE-CSE-□□ is MR-J3ENCBLM-A□□ manufactured by Mitsubishi Electric.
* LE-CSN-□□ is MR-PWS1CBLM-A□□ manufactured by Mitsubishi Electric.
* LE-CSB-□□ is MR-BKS1CBLM-A□□ manufactured by Mitsubishi Electric.
* LE-CSE-□□ is MR-J3ENCBLM-A□□ manufactured by Mitsubishi Electric.

---

I/O connector

**LE – CSN**

- Controller type:
  - A: LECA□□, LECS□□
  - B: LECSB□□
  - S: LECSS□□

---

* LE-CSN: 10126-3000EL (connector)/10326-3210-0000 (shell kit) manufactured by 3M or equivalent item.
* LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M or equivalent item.
* LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M or equivalent item.

---

Regeneration option (LECS/L52408 common)

**LEC – MR – RB – □□**

- Regeneration option type:
  - 032: Allowable regenerative power 30 W
  - 12: Allowable regenerative power 100 W

- Dimensions [mm]

<table>
<thead>
<tr>
<th>Model</th>
<th>LA</th>
<th>LB</th>
<th>LC</th>
<th>LD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEC-MR-RB-032</td>
<td>30</td>
<td>119</td>
<td>99</td>
<td>1.6</td>
</tr>
<tr>
<td>LEC-MR-RB-12</td>
<td>40</td>
<td>169</td>
<td>149</td>
<td>2</td>
</tr>
</tbody>
</table>

* MR-RB-□□ manufactured by Mitsubishi Electric.

---

SSCNET III optical cable

**LE – CSS – 1**

- Motor type:
  - S: AC servo motor

- Cable description:
  - S: SSCNET III optical cable

- Cable length:
  - L: 0.15 m
  - K: 0.3 m
  - J: 0.5 m
  - 1: 1 m
  - 3: 3 m

* LE-CSS-□□ is MR-J3BUS□□ manufactured by Mitsubishi Electric.
Setup software (MR Configurator™) (LECSA, LECSB, LECSC, LECSS common)

**LEC – MR – SETUP221**

- **Display language**

<table>
<thead>
<tr>
<th>Nil</th>
<th>Japanese version</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>English version</td>
</tr>
</tbody>
</table>

* MRZ JW3-SETUP221 manufactured by Mitsubishi Electric.
  Refer to Mitsubishi Electric’s website for operating environment and version update information.
  MR Configurator™ is a registered trademark or trademark of Mitsubishi Electric.

Adjustment, motor display, diagnostics, parameter read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (MR Configurator™), use an IBM PC/AT compatible PC that meets the following operating conditions.

### Hardware Requirements

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Setup software (MR Configurator™) LEC-MR-SETUP221</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available HD space</td>
<td>130 MB or more</td>
</tr>
<tr>
<td>Communication interface</td>
<td>Use USB port</td>
</tr>
<tr>
<td>Display resolution</td>
<td>1024 x 768 or more</td>
</tr>
<tr>
<td>Display interface</td>
<td>Must be capable of high color (16-bit) display, The connectable with the above PC</td>
</tr>
<tr>
<td>Keyboard</td>
<td>The connectable with the above PC</td>
</tr>
<tr>
<td>Mouse</td>
<td>The connectable with the above PC</td>
</tr>
<tr>
<td>Printer</td>
<td>The connectable with the above PC</td>
</tr>
<tr>
<td>USB cable</td>
<td>LEC-MR-J3USB Note 4, 5</td>
</tr>
</tbody>
</table>

Note 1) Before using a PC for setting LECSA point table method/program method or LECSC point table No. input, upgrade to version C5 (Japanese version) /version C4 (English version). Refer to Mitsubishi Electric’s website for version upgrade information.
Note 2) Windows, Windows Vista, Windows 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 3) This software may not run correctly depending on the PC that you are using.
Note 4) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.
Note 5) Order USB cable separately.

---

**USB cable (3 m)**

**LEC – MR – J3USB**

* MR-J3USB manufactured by Mitsubishi Electric.

Cable for connecting PC and driver when using the setup software (MR Configurator™).
Do not use any cable other than this cable.

**Battery (only for LECSB, LECSC or LECSS)**

**LEC – MR – J3BAT**

* MR-J3BAT manufactured by Mitsubishi Electric.

Battery for replacement.
Absolute position data is maintained by installing the battery to the driver.