**Series LECPA**

### Wiring Diagram

#### LECPA(NPN)

- **Name**: LECPAN
- **Part no.**: 1

#### LECPA(PNP)

- **Name**: LECPAP(NPN)
- **Part no.**: 1

#### Output Signal

**Details**
- **COM**: Outputs when the actuator is operating
- **SETON**: Outputs when returning to the original position
- **TP**: Outputs when target position is reached
- **SVRE**: Outputs when return-to-origin command signal is input
- **WAREA**: Outputs when the moving area is set
- **INP**: Outputs within the moving area
- **NP**: Outputs when alarm signal is generated
- **PP**: Outputs when step motor is instructed
- **GPIO**: Outputs when step motor is instructed

#### Detailed Pulse Signal Wiring

- **Pulse signal output of positioning unit is differential output**
- **Pulse signal output of positioning unit is open collector output**

### Pulse signal power supply

- **Positioning unit**: 120 V
- **Inside of the driver**: 120 V

---

**Note**
- For pulse signal wiring method, refer to "Detailed Pulse Signal Wiring".
- Signal of negative-logic circuit ON (N.C.)
- Do not form connection to pins indicated with.

---

**Step Motor Driver**

(Pulse Input Type) For Step Motor

**Series LECPA**

- A driver that uses pulse signals to allow positioning at any position. The actuator can be controlled from the customers’ positioning unit.

---

**Return-to-origin command signal**

Enables automatic return-to-origin action.

### System Construction

- **Step motor driver** (Pulse input type) Series LECPA

---

**Compatible actuators**

<table>
<thead>
<tr>
<th>Catalog no.</th>
<th>Electric Actuator/ Slide Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES100-83</td>
<td>Electric Actuator/ Slide Type Series LEY</td>
</tr>
<tr>
<td>ES100-87</td>
<td>Electric Actuator/ Slide Type Series LEP</td>
</tr>
</tbody>
</table>

---

**Compatible actuators**

<table>
<thead>
<tr>
<th>Catalog no.</th>
<th>Electric Actuator/ Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES100-78</td>
<td>Electric Slide Table Series LE</td>
</tr>
<tr>
<td>ES100-94</td>
<td>Electric Slide Table Series LER</td>
</tr>
<tr>
<td>ES100-92</td>
<td>Electric Actuator/ Type LEPY/LEPS</td>
</tr>
</tbody>
</table>

---

**Information**

- **Touch panel**: Pulse signal
- **Step motor driver**: Pulse signal

---

**PC**

- **Controller setting kit**: Communication cable
- **USB cable**: (A-mini B type)
**Series LECPA**

**How to Order**

**Driver with actuator**

**LEFS16B-100**

<table>
<thead>
<tr>
<th>Compatible actuator</th>
<th>Catalog no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Actuator/Rod Type Series LEY</td>
<td>ES100-83</td>
</tr>
<tr>
<td>Electric Actuator/Sliding Rod Type Series LEYG</td>
<td>ES100-94</td>
</tr>
<tr>
<td>Electric Slide Table Series LES</td>
<td>ES100-83</td>
</tr>
<tr>
<td>Electric Actuator/Miniature Type Series LEPY</td>
<td>ES100-92</td>
</tr>
</tbody>
</table>

**Actuator type**

**LECPAN1** - **LEFS16B-100**

**Driver mounting**

- Driver mounting
  - NB: Screw mounting
  - S: DIN rail mounting

**Actuator cable**

- Driver type
  - AN: Pulse input type (NPN)
  - AP: Pulse input type (PNP)

**Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>DC 24 V, 10%</td>
</tr>
<tr>
<td>Pulse input</td>
<td>3 inputs (except photo-coupler isolation, pulse input terminal COM terminal)</td>
</tr>
<tr>
<td>Parallel output</td>
<td>8 outputs (Photo-coupler isolation)</td>
</tr>
<tr>
<td>Input method</td>
<td>5 pulse modes (Pulse input in direction, Pulse input in different directions)</td>
</tr>
<tr>
<td>Incremental AB phase resolution</td>
<td>850 pulses/revolution</td>
</tr>
<tr>
<td>Motor option</td>
<td>STEPMEM</td>
</tr>
<tr>
<td>Encoder</td>
<td>1500 pulses/revolution</td>
</tr>
<tr>
<td>Code control</td>
<td>Perforated release terminal/PWM</td>
</tr>
<tr>
<td>Cable length (L)</td>
<td>10 m (open collector), 5 m (differential)</td>
</tr>
<tr>
<td>Actuator cable</td>
<td>20 m</td>
</tr>
<tr>
<td>Cooling system</td>
<td>Natural air cooling</td>
</tr>
<tr>
<td>Operating temperature range (C)</td>
<td>0 to 40 (No freezing)</td>
</tr>
<tr>
<td>Operating humidity range (RH%)</td>
<td>95% or less (No condensation)</td>
</tr>
<tr>
<td>Storage temperature range (C)</td>
<td>-10 to 60 (No freezing)</td>
</tr>
<tr>
<td>Storage humidity range (RH%)</td>
<td>95% or less (No condensation)</td>
</tr>
<tr>
<td>Insulation resistance [MΩ]</td>
<td>Between the housing (suction fin) and PG terminal: 50 (500 VDC)</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>1.5 (screw mounting), 1.5 m (DIN rail mounting)</td>
</tr>
</tbody>
</table>

**Option**

**Actuator type**

**LECPAN1** - **LEFS16B-100**

**Motor option**

- Driver mounting
  - NB: Without lock
  - S: With lock

**[Actuator cable]**

- Cable length
  - 1: 1.5 m
  - 2: 3 m
  - 3: 5 m
  - 4: 8 m
  - 5: 10 m
  - 6: 15 m
  - 7: 20 m

**[I/O cable]**

- I/O cable type
  - L: For Series LECPA
  - L5: For Series LEPC

**Dimensions**

**Driver mounting**

- NB: Screw mounting
  - 1.5 m (Open collector), 5 m (Differential)

**Motor option**

- NB: Without lock
  - S: With lock

Note: DIN rail is not included. The DIN rail should be prepared by the customer or ordered separately (Part no.: AXT100-DR-...). Refer to the catalog.
**Series LECPA**

**How to Order**

**Driver with actuator**

**LEFS16B-100**

**Actuator type**

Refer to “How to Order” in the actuator catalog. For compatible actuators, refer to the table below. Example: LEFS16B-100B-S1AN1

<table>
<thead>
<tr>
<th>Compatible actuators</th>
<th>Catalog no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Actuator/Rod Type Series LEYG</td>
<td>ES100-83</td>
</tr>
<tr>
<td>Electric Actuator/Side Rod Type Series LEY</td>
<td>ES100-83</td>
</tr>
<tr>
<td>Electric Actuator/Slider Type Series LEF</td>
<td>ES100-87</td>
</tr>
<tr>
<td>Electric Slide Table Series LES</td>
<td>ES100-78</td>
</tr>
<tr>
<td>Electric Actuator/Miniature Type Series LEPY/LEPS</td>
<td>ES100-92</td>
</tr>
</tbody>
</table>

- Pulse input usable only when different. Only 1.5 m cables usable with open collector.

**Power supply**

Compatible motor: Step motor (Servo/24 VDC)

- Maximum current consumption: 3 A (Peak 5 A) (Note 3)

**Insulation**

- Insulation resistance: 5 MΩ (Between the housing (radiation fin) and FG terminal)

**Dimensions**

**a) Screw mounting (LECPA□□□□□□□)**

- For body mounting

**b) DIN rail mounting (LECPA□□□□□□□)**

- For body mounting

**Option**

**[Actuator cable]**

**LECP**

**Motor option**

- Without lock
- With lock

**[I/O cable]**

**LEC-C L5**

- For Series LECPA

**Motor option**

- Without lock
- With lock

**Specifications**

**Actuator type**

Refer to the specifications and actuator options. Example: Enter “LEFS16B-100” for the LEFS16B-100B-S1AN1.

**Power supply**

- Compatible motor: Step motor (Servo/24 VDC)
- Power voltage: 24 VDC ±10%
- Maximum current consumption: 3 A (Peak 5 A) (Note 3)

**Parallel input**

- 4 inputs (Except photo-coupler isolation, pulse input terminal, COM terminal)
- Input method: 1 pulse mode (Pulse input in direction), 2 pulse mode (Pulse input in a differing direction)

**Parallel output**

- 8 outputs (Photo-coupler isolation)

**Pulse signal input**

- Maximum frequency: 100 kHz (Open collector), 200 kHz (Differential)
- Input method: Pulse input usable only with differential. Only 1.5 m cables usable with open collector.

**Memory**

- External memory size: 512 (Modbus protocol compatible)

**Cooling system**

- Natural air cooling

**Operating temperature range**

- 0 to 40°C (Note 1)

**Operating humidity range**

- 95% or less (No condensation)

**Storage temperature range**

- -20 to 70°C (Note 2)

**Storage humidity range**

- 95% or less (No condensation)

**Insulation resistance (MΩ)**

- Between the housing (radiation fin) and COM terminal: 50 (500 VDC)

**Weight (g)**

- 120 (Screw mounting)
- 140 (DIN rail mounting)

**Note:**

1. Do not use the power supply of "no-brush current prevention type" for the driver power supply.
2. The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.
3. Applicable to non-magnetizing lock.

---

**Series LECPA**

---

**Dimensions**

- For Series LECPA

---

**How to Order**

**Driver with actuator**

**LEFS16B-100**

**Actuator type**

Refer to “How to Order” in the actuator catalog. For compatible actuators, refer to the table below. Example: LEFS16B-100B-S1AN1

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<td>Electric Actuator/Miniature Type Series LEPY/LEPS</td>
<td>ES100-92</td>
</tr>
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</table>

- Pulse input usable only when different. Only 1.5 m cables usable with open collector.

**Power supply**

Compatible motor: Step motor (Servo/24 VDC)

- Maximum current consumption: 3 A (Peak 5 A) (Note 3)

**Insulation**

- Insulation resistance: 5 MΩ (Between the housing (radiation fin) and FG terminal)

**Dimensions**

**a) Screw mounting (LECPA□□□□□□□)**

- For body mounting

**b) DIN rail mounting (LECPA□□□□□□□)**

- For body mounting

**Option**

**[Actuator cable]**

**LECP**

**Motor option**

- Without lock
- With lock

**[I/O cable]**

**LEC-C L5**

- For Series LECPA

**Motor option**

- Without lock
- With lock

**Specifications**

**Actuator type**

Refer to the specifications and actuator options. Example: Enter “LEFS16B-100” for the LEFS16B-100B-S1AN1.

**Power supply**

- Compatible motor: Step motor (Servo/24 VDC)
- Power voltage: 24 VDC ±10%
- Maximum current consumption: 3 A (Peak 5 A) (Note 3)

**Parallel input**

- 4 inputs (Except photo-coupler isolation, pulse input terminal, COM terminal)
- Input method: 1 pulse mode (Pulse input in direction), 2 pulse mode (Pulse input in a differing direction)

**Parallel output**

- 8 outputs (Photo-coupler isolation)

**Pulse signal input**

- Maximum frequency: 100 kHz (Open collector), 200 kHz (Differential)
- Input method: Pulse input usable only with differential. Only 1.5 m cables usable with open collector.

**Memory**

- External memory size: 512 (Modbus protocol compatible)

**Cooling system**

- Natural air cooling

**Operating temperature range**

- 0 to 40°C (Note 1)

**Operating humidity range**

- 95% or less (No condensation)

**Storage temperature range**

- -20 to 70°C (Note 2)

**Storage humidity range**

- 95% or less (No condensation)

**Insulation resistance (MΩ)**

- Between the housing (radiation fin) and COM terminal: 50 (500 VDC)

**Weight (g)**

- 120 (Screw mounting)
- 140 (DIN rail mounting)

**Note:**

1. Do not use the power supply of "no-brush current prevention type" for the driver power supply.
2. The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.
3. Applicable to non-magnetizing lock.
## Series LECPA

### Wiring Diagram

#### LECPAN (NPN)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COM+</td>
<td>Connects the power supply 24 V for input/output signal</td>
</tr>
<tr>
<td>2</td>
<td>COM-</td>
<td>Connects the power supply 0 V for input/output signal</td>
</tr>
<tr>
<td>3</td>
<td>NP+</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>4</td>
<td>NP-</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>5</td>
<td>PP+</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>6</td>
<td>PP-</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>7</td>
<td>SVRE</td>
<td>Output</td>
</tr>
<tr>
<td>8</td>
<td>BUSY</td>
<td>Output</td>
</tr>
<tr>
<td>9</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>10</td>
<td>CLR</td>
<td>Output</td>
</tr>
<tr>
<td>11</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>12</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>13</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>14</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>15</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>16</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>17</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>18</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>19</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>20</td>
<td>AREA</td>
<td>Output</td>
</tr>
</tbody>
</table>

#### LECPAP (PNP)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COM+</td>
<td>Connects the power supply 24 V for input/output signal</td>
</tr>
<tr>
<td>2</td>
<td>COM-</td>
<td>Connects the power supply 0 V for input/output signal</td>
</tr>
<tr>
<td>3</td>
<td>NP+</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>4</td>
<td>NP-</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>5</td>
<td>PP+</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>6</td>
<td>PP-</td>
<td>Pulse signal</td>
</tr>
<tr>
<td>7</td>
<td>SVRE</td>
<td>Output</td>
</tr>
<tr>
<td>8</td>
<td>BUSY</td>
<td>Output</td>
</tr>
<tr>
<td>9</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>10</td>
<td>CLR</td>
<td>Output</td>
</tr>
<tr>
<td>11</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>12</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>13</td>
<td>AREA</td>
<td>Output</td>
</tr>
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<td>14</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>15</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>16</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>17</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>18</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>19</td>
<td>AREA</td>
<td>Output</td>
</tr>
<tr>
<td>20</td>
<td>AREA</td>
<td>Output</td>
</tr>
</tbody>
</table>

### Output Signal

<table>
<thead>
<tr>
<th>Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSY</td>
<td>Output when the actuator is operating</td>
</tr>
<tr>
<td>SETON</td>
<td>Outputs when returning to the original position</td>
</tr>
<tr>
<td>TRP</td>
<td>Outputs when target position is reached</td>
</tr>
<tr>
<td>SHVRE</td>
<td>Outputs when the actuator is operating</td>
</tr>
<tr>
<td>TESTOP</td>
<td>Not output when EMS stop is instructed</td>
</tr>
<tr>
<td>SVON</td>
<td>Not output when alarm is generated</td>
</tr>
<tr>
<td>AREA</td>
<td>Outputs within the area output setting range</td>
</tr>
<tr>
<td>CPA</td>
<td>Outputs within the CPA output setting range</td>
</tr>
</tbody>
</table>

### Detailed Pulse Signal Wiring

- **Pulse signal output of positioning unit is differential output**

### System Construction

#### Step Motor Driver

- **Pulse Motor Driver** (Pulse Input Type) Series LECPA

- **Return-to-origin command signal**

* A driver that uses pulse signals to allow positioning at any position. The actuator can be controlled from the customers' positioning unit.

* Enables automatic return-to-origin action.

#### Step Motor Driver (Pulse Input Type)

- **For Step Motor** Series LECPA

#### Electric Actuator

- **Electric Actuator** (Pulse Input Type) Series LECPA

#### System Construction

- **Step motor driver**

- **Controller setting kit**

- **Teaching box**

#### In Case of 3-m Cable

- **USB cable**

#### Driver Input Power Supply

- **Supplied by customer**

#### Driver Input Power Supply

- **Supplied by customer**

#### Compatible Actuators

- **Calendar no.**

#### Electric Actuator

- **Catalog no.**

<table>
<thead>
<tr>
<th>Compatible actuators</th>
<th>Catalog no.</th>
<th>Compatible actuators</th>
<th>Catalog no.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>ES100-83</td>
<td>Electric Actuator/ Rod Type Series LEYG</td>
<td>ES100-94</td>
</tr>
<tr>
<td>Electric Actuator/ Guide Rod Type Series LEYG</td>
<td>ES100-92</td>
<td>Electric Actuator/ Miniature Type Series LEPI/LEPS</td>
<td>ES100-92</td>
</tr>
</tbody>
</table>