

Electric Actuator Large Slider Type Belt Drive

Size: 80, 100

AC Servo Motor

New



* For details, refer to page 49.

RoHS

Max. work load **240 kg** (Size 100) / **75 kg** (Size 80)

Stroke Up to **3000 mm** (Standard)

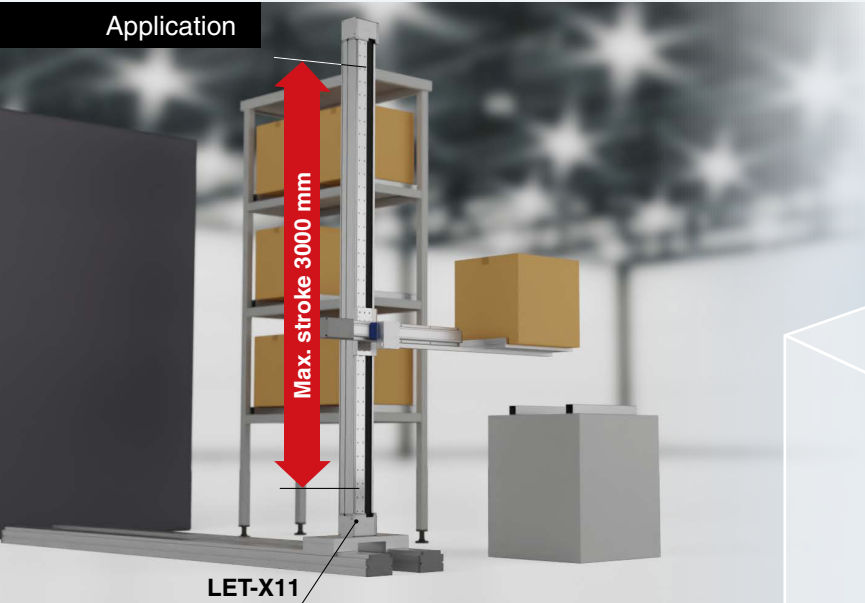
Max. speed
[mm/s]

4000 (Size 100)
2160 (Size 80)

Max.
acceleration/
deceleration
[mm/s²]

20000

Application



LET-X11

* Please use the product in accordance with the specifications provided in the catalogs/operation manuals. It is your responsibility to check the suitability for your workpiece and equipment.



Supports 750 W (200 VAC)

- Simplified belt replacement
- Solid state auto switches are mountable.

LET-X11 Series



CAT.ES100-158A

Low profile, Low center of gravity

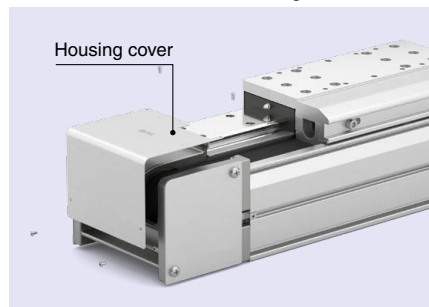
Height: **109 mm** (LET80)/ **166 mm** (LET100)

| Size | Height | Stroke |
|------|--------|--------|
| 80 | 109 | 3000 |
| 100 | 166 | |

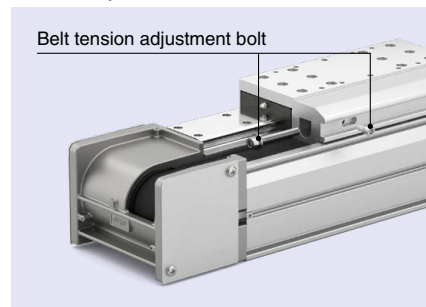


Easy replacement of the timing belt

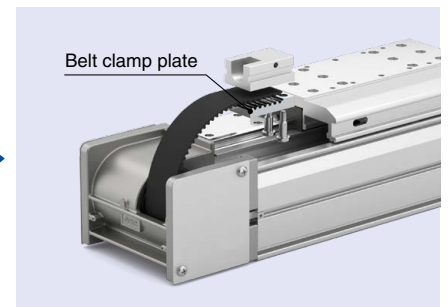
Disconnect the housing cover retaining screw, and remove the housing cover.



Remove the belt holder by removing the belt tension adjustment bolt.

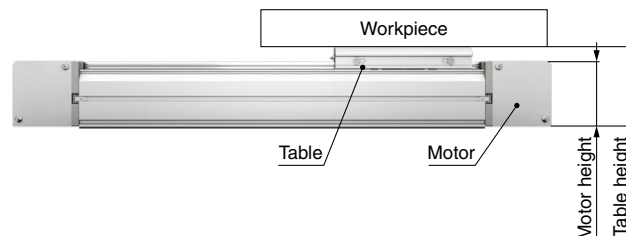


Remove the belt clamp plate, and replace the belt.



Workpiece does not interfere with the motor.

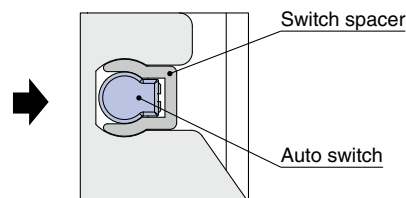
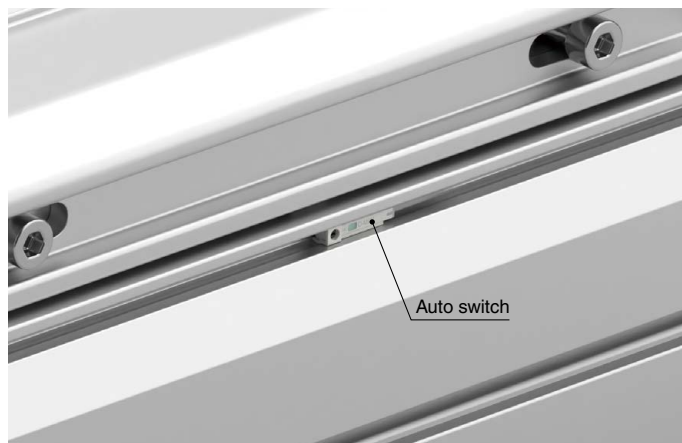
Table height > Motor height



Solid state auto switches are mountable.

(For checking the limit and the intermediate signal)

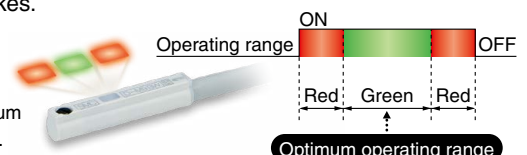
- A contact and B contact types available
- D-M9□W (2-color indicator), D-M9□, D-M9□E (B contact type)



2-color indicator solid state auto switch







Accurate setting of the mounting position can be performed without mistakes.

A **green** light lights up when within the optimum operating range.





LECSA/LECS□-T/LECY□ Series List p. 30

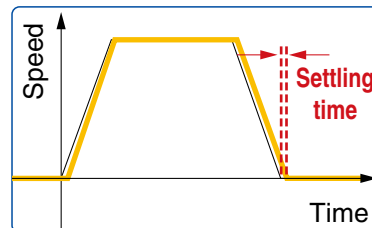
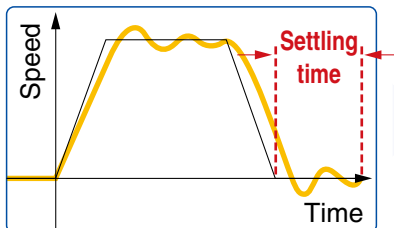
| | Series | Compatible motor | | Control method | | | Application/Function | | | Compatible option |
|------------------|---|------------------|-------|----------------|-------|----------------------|----------------------|---------------------|---------------------|-------------------|
| | | 400 W | 750 W | Positioning*1 | Pulse | Network direct input | Synchronous*2 | Pushing operation*4 | Safety function STO | Setup software |
| Incremental Type |  <p>LECSA (Pulse input type/ Positioning type)</p> | ● | | ● | ● | | | | | ● |
| |  <p>LECSB-T (Pulse input type/ Positioning type)</p> | ● | ● | ● | ● | | | ●*4 | ● | ● |
| Absolute Type |  <p>CC-Link LECSA-T (CC-Link direct input type)</p> | ● | ● | ● | | ● | | | | ● |
| |  <p>SSCNET III/H LECSB-T (SSCNET III/H type) Compatible with Mitsubishi Electric's servo system controller network</p> | ● | ● | | | ● | ●*2 | ●*4 | ● | ● |
| |  <p>MECHATROLINK-II LECSA-T</p> | ● | | | | ● | ●*3 | | ● | ● |
| |  <p>MECHATROLINK-III LECSB-T</p> | ● | | | | ● | ●*3 | | ● | ● |
| | LECYM | | | | | | | | | |
| | LECYU | | | | | | | | | |

*1 For positioning types, the settings need to be changed in order to use the max. set values. Setup software (MR Configurator2™) LEC-MRC2 is required.
 *2 Available when a Mitsubishi motion controller is used as upper level equipment
 *3 Available when a motion controller is used as upper level equipment
 *4 The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings.
 When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.
 ** For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.
 *5 The LECSB2-T can be used by adding the "MR Configurator2 dedicated file for the LECSB2-T" to the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website.

Gain adjustment using auto tuning

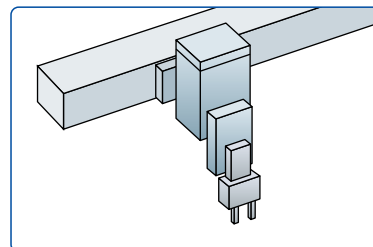
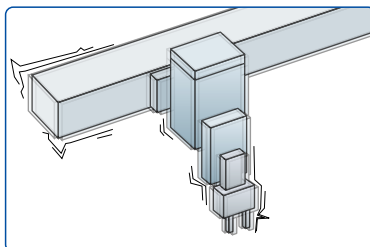
Auto-tuning function

- Controls the difference between the command value and the actual action



Vibration suppression control function

- Automatically suppresses low-frequency machine vibrations (1 to 100 Hz)



With display setting function

One-touch adjustment button

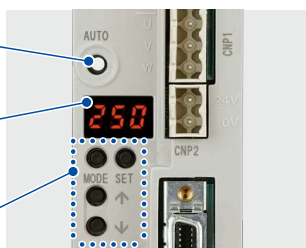
One-touch servo adjustment

Display

Display the monitor, parameters, and alarm.

Settings

Set the parameters, monitor display, etc., with push buttons.



LECSA

Display

Display the monitor, parameters, and alarm.

Settings

Set the parameters, monitor display, etc., with push buttons.



(With the front cover opened)
LECSB-T

Display

Display the communication status with the driver, the alarm, and the point table no.

Settings

Control the Baud rate, station number, and the occupied station count.



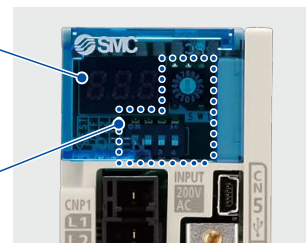
(With the front cover opened)
LECSC-T

Display

Display the communication status with the driver and the alarm.

Settings

Switches for axis setting, control axis deactivation, switching to the test operation, etc.



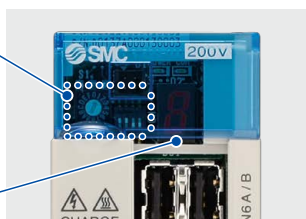
LECSS2-T

Settings

Switches for station address, communication speed, number of transmission bytes, etc.

Display

Display the driver status and alarm.



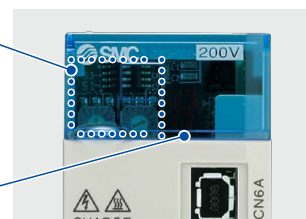
LECYM

Settings

Switches for station address, number of transmission bytes, etc.

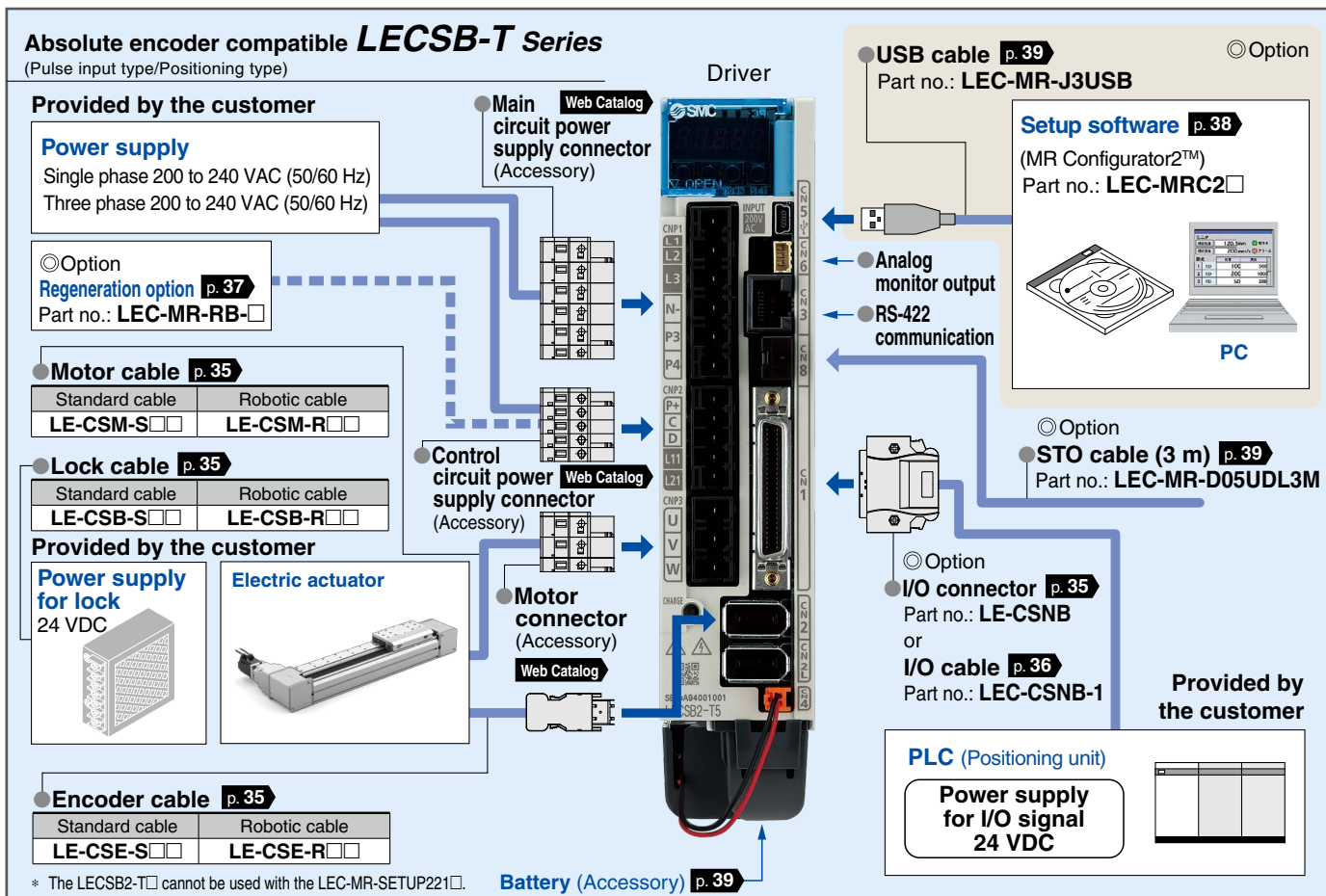
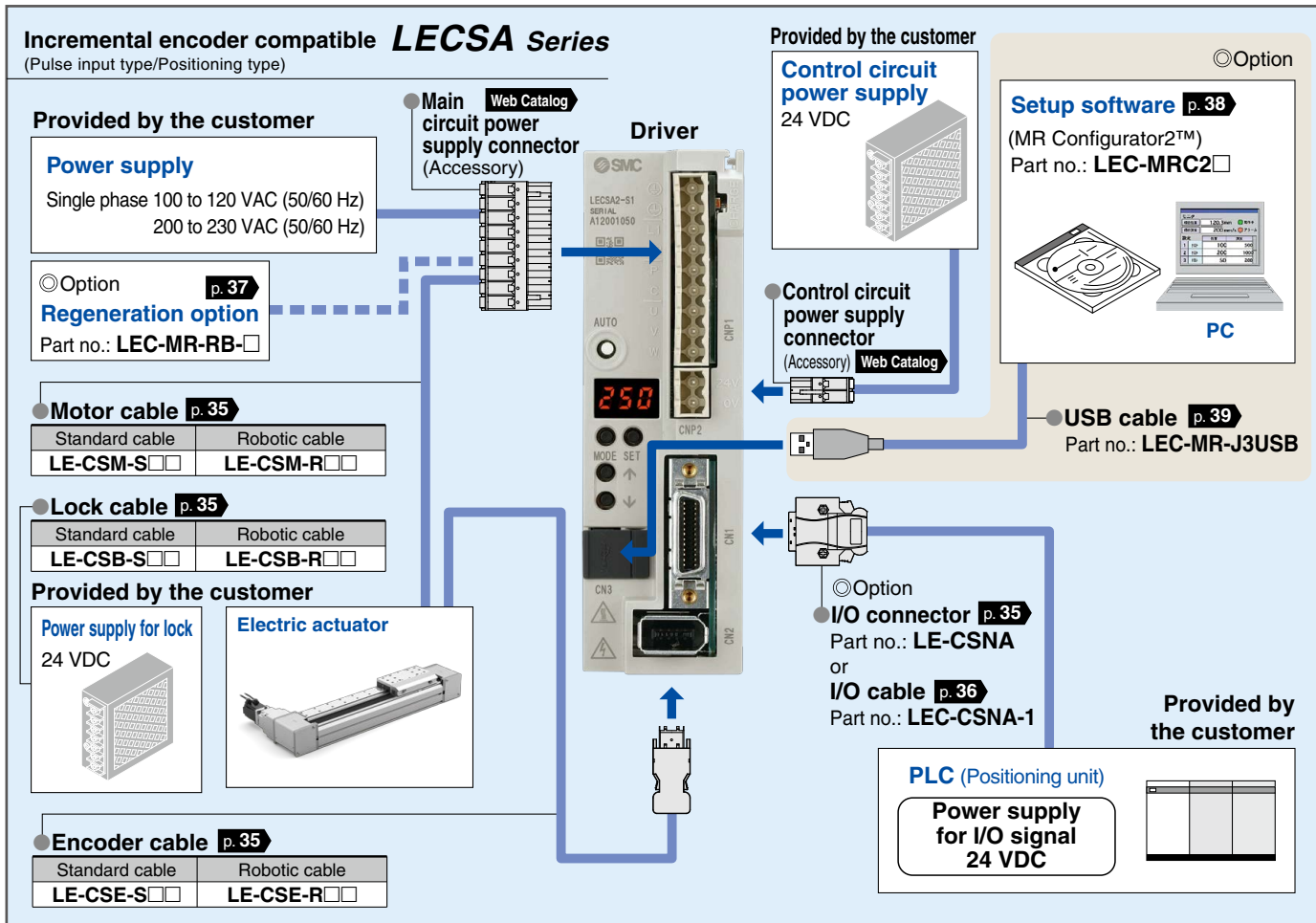
Display

Display the driver status and alarm.

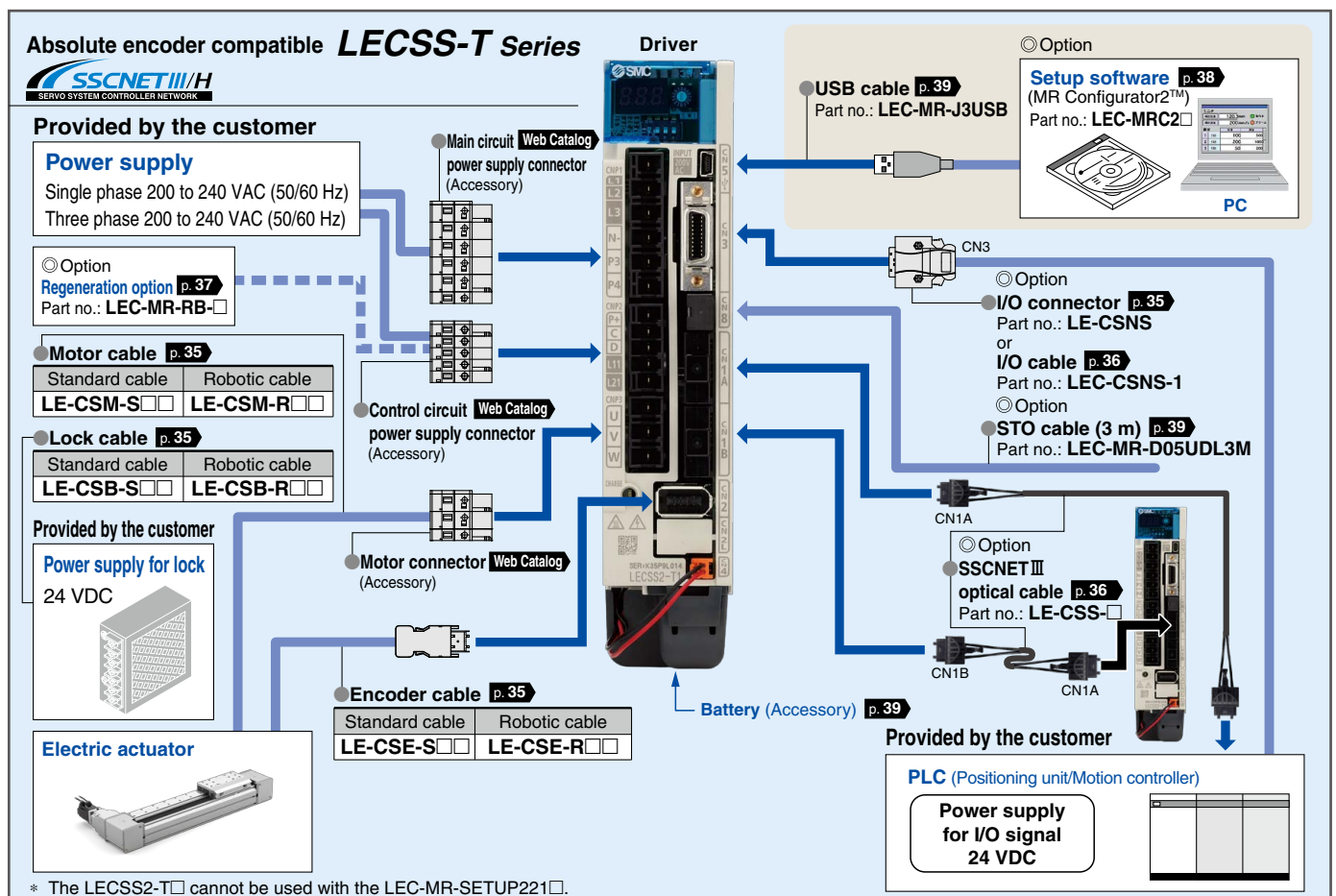
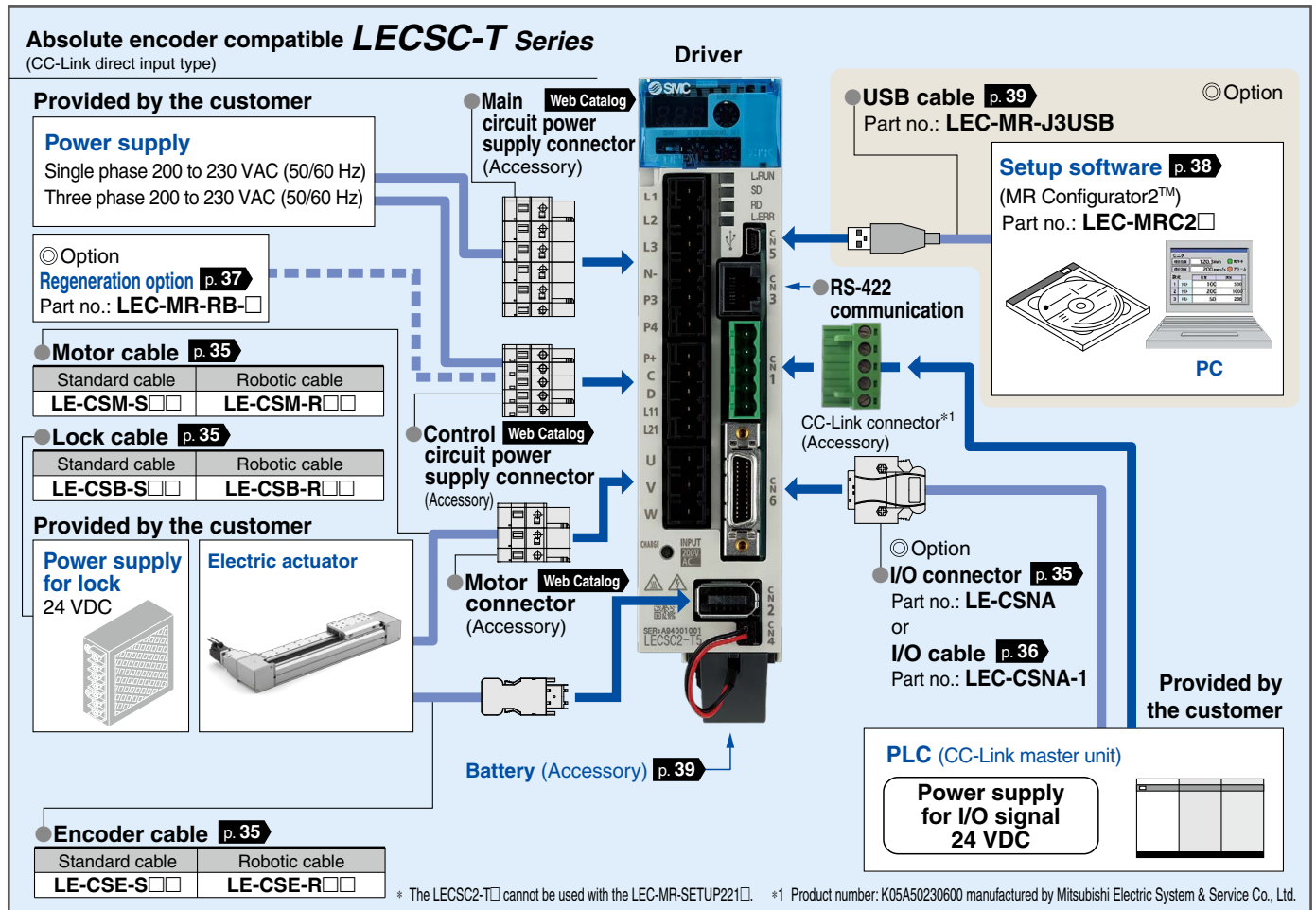


LECYU

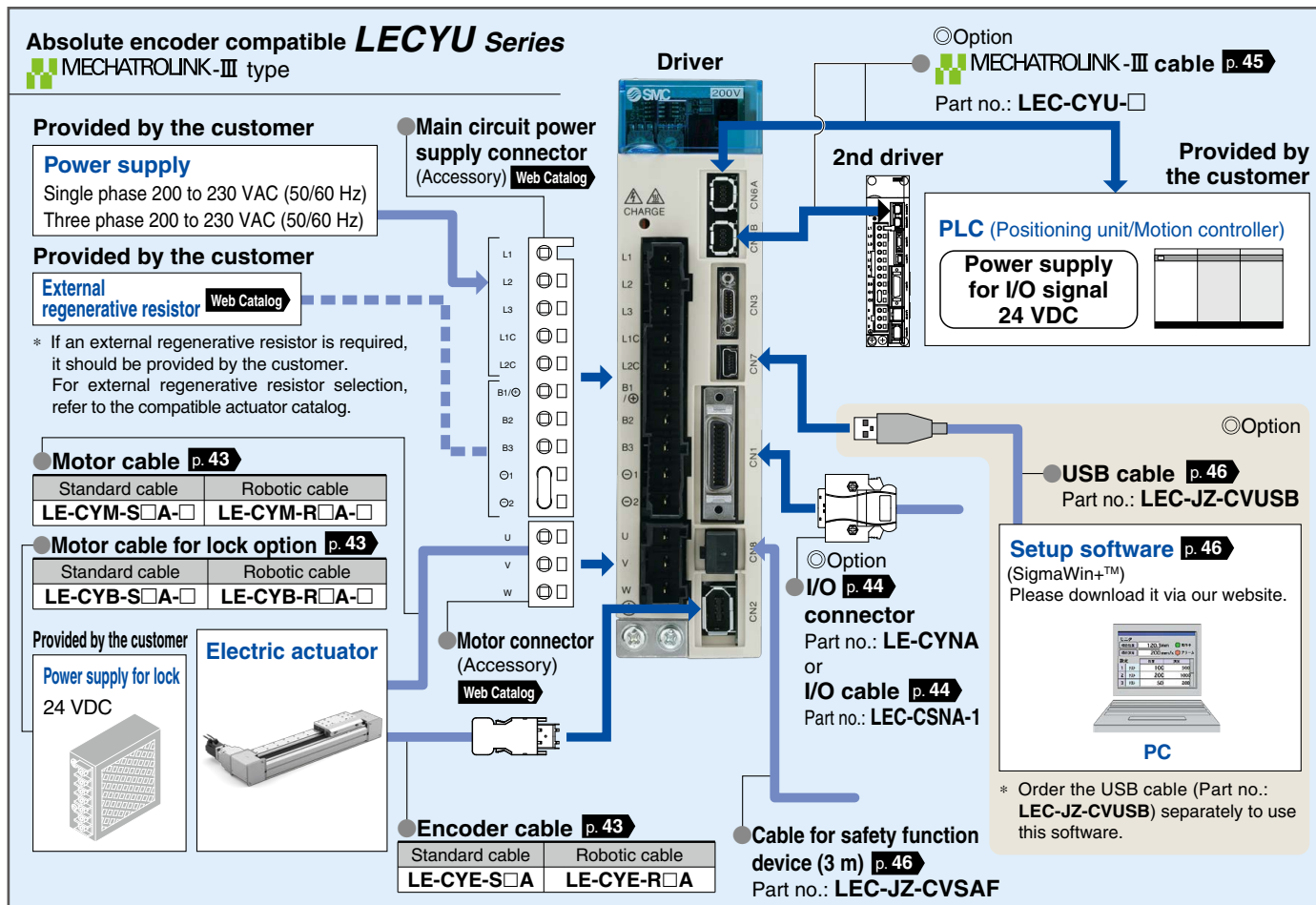
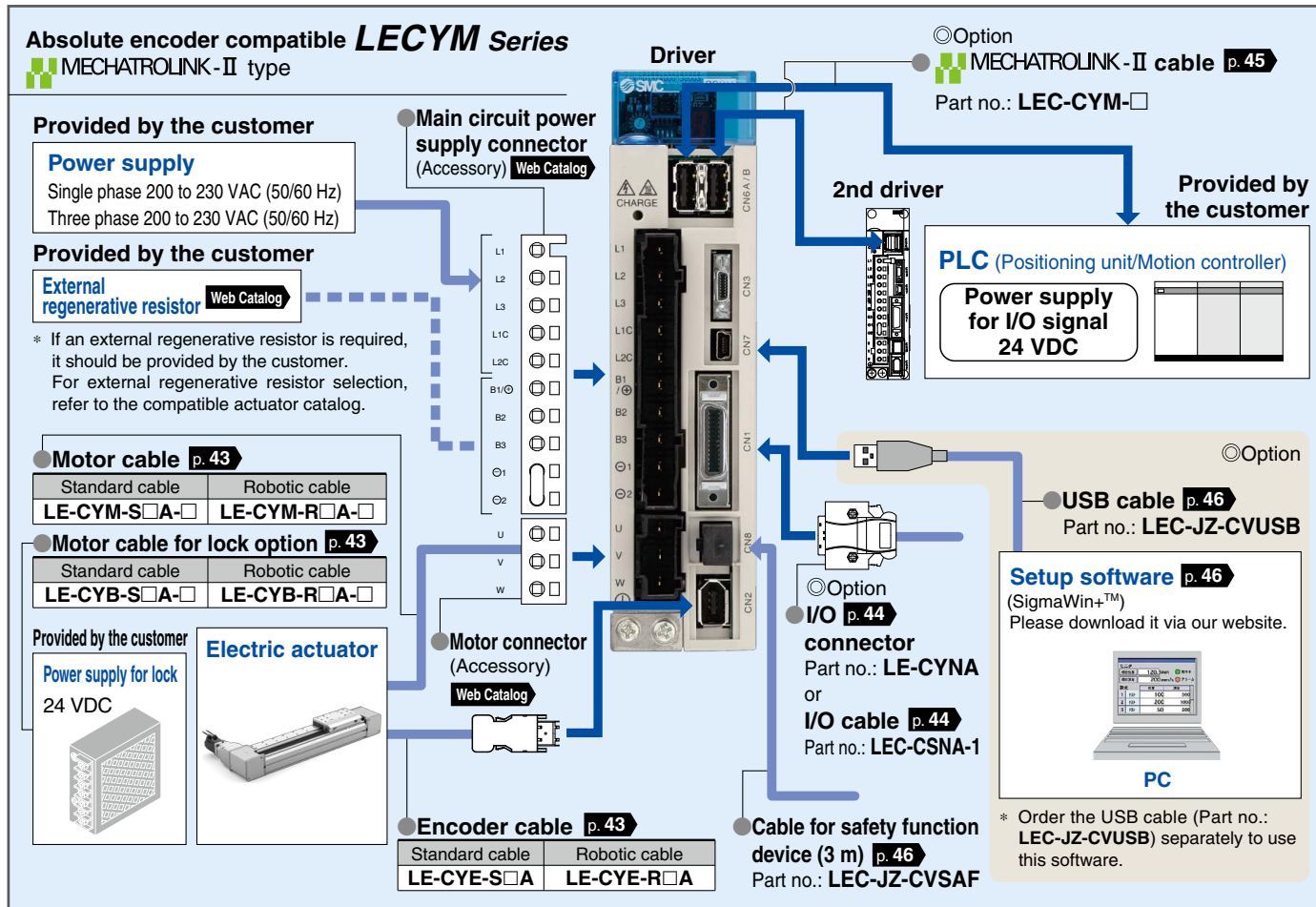
System Construction



System Construction



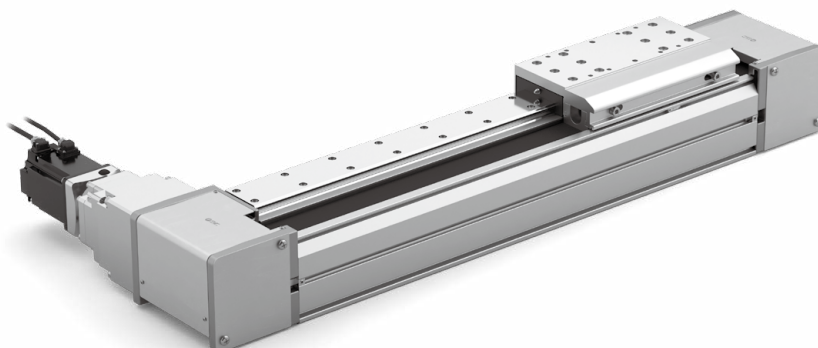
System Construction



Large Slider Type

Belt Drive *LET-X11 Series*

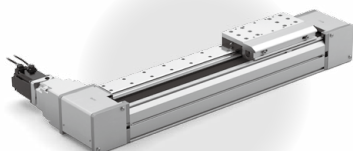
AC Servo Motor



CONTENTS

Large Slider Type *LET-X11 Series* **p. 8**

AC Servo Motor



| | |
|------------------------------------|-------|
| Model Selection | p. 9 |
| How to Order | p. 20 |
| Specifications | p. 21 |
| Dimensions | p. 22 |
| Auto Switch Mounting | p. 24 |
| Specific Product Precautions | p. 28 |

AC Servo Motor Drivers *LECSA/LECS□-T/LECY□ Series*

AC Servo Motor Driver *LECSA/LECS□-T Series*



| | |
|----------------------|-------|
| How to Order | p. 31 |
| Dimensions | p. 31 |
| Specifications | p. 33 |
| Options | p. 35 |

AC Servo Motor Driver *LECYM/LECYU Series*



| | |
|----------------------|-------|
| How to Order | p. 40 |
| Dimensions | p. 40 |
| Specifications | p. 41 |
| Options | p. 43 |

| | |
|------------------------------------|-------|
| Specific Product Precautions | p. 47 |
|------------------------------------|-------|

| | |
|----------------------------------|-------|
| CE/UKCA/UL-compliance List | p. 49 |
|----------------------------------|-------|

Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

Model Selection



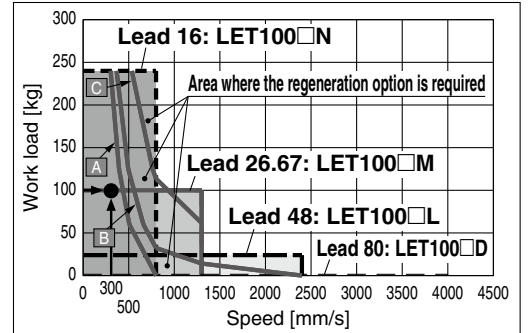
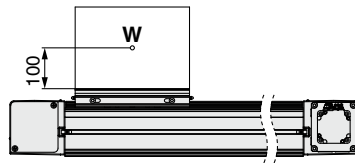
Selection Procedure



Selection Example

Operating conditions

- Work load: 100 [kg]
 - Speed: 300 [mm/s]
 - Acceleration/Deceleration: 3000 [mm/s²]
 - Stroke: 300 [mm]
 - Mounting orientation: Horizontal
 - Motor type: Absolute encoder
 - External force: 10 [N]
- Workpiece mounting condition:



<Speed-Work load graph>
(LET100)

Step 1 Check the work load-speed. <Speed-Work load graph> (page 10)

Select a model based on the work load and speed while referencing the speed-work load graph. Selection example) The **LET100FRT9M-300-X11** can be temporarily selected as a possible candidate based on the graph shown on the right side.

The regeneration option may be necessary. Refer to page 10 for the “Required Conditions for the Regeneration Option.”

Step 2 Check the cycle time.

Refer to method 1 for a rough estimate, and method 2 for a more precise value.

Method 1: Check the cycle time graph (page 11)

The graph is based on the maximum speed of each size.

Method 2: Calculation

Cycle time:

T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1 and T3 can be found by the following equation.

$$T1 = V/a1 \text{ [s]} \quad T3 = V/a2 \text{ [s]}$$

The acceleration and deceleration values have upper limits depending on the workpiece mass and the duty ratio.

Check that they do not exceed the upper limit, by referring to “Work Load-Acceleration/Deceleration Graph (Guide)” (page 15).

- T2 can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4 varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 300/3000 = 0.1 \text{ [s]}$$

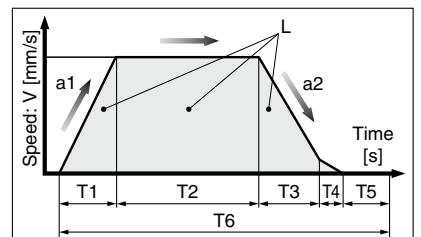
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.90 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

The cycle time can be found as follows.

$$T = T1 + T2 + T3 + T4 = 0.1 + 0.90 + 0.1 + 0.05 = 1.15 \text{ [s]}$$



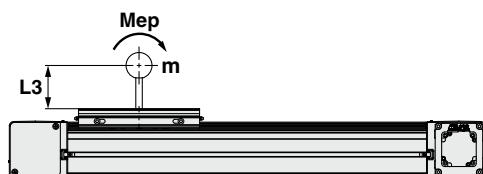
- L : Stroke [mm]
- V : Speed [mm/s]
- a1 : Acceleration [mm/s²]
- a2 : Deceleration [mm/s²]
- T1: Acceleration time [s]
Time until reaching the set speed
- T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
- T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
- T4: Settling time [s]
Time until positioning is completed
- T5: Resting time [s]
Time the product is not running
- T6: Total time [s]
Total time from T1 to T5

Duty ratio: Ratio of T to T6
 $T \div T6 \times 100$

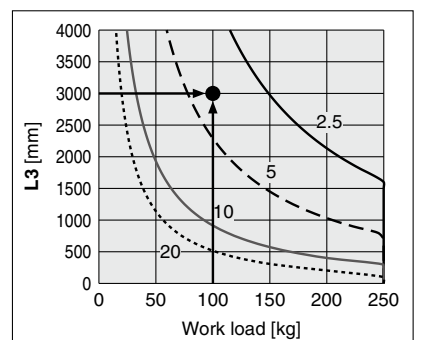
Step 3 Check the allowable moment. <Static allowable moment> (page 21)

<Dynamic allowable moment> (page 17)

Confirm the moment that applies to the actuator is within the allowable range for both static and dynamic conditions.



Selection example)
 Select the **LET100FRT9M-300-X11** from the graph on the right side. Confirm that the external force is 20 [N] or less. (The external force is the resistance due to cable duct, flexible trunking or air tubing.)

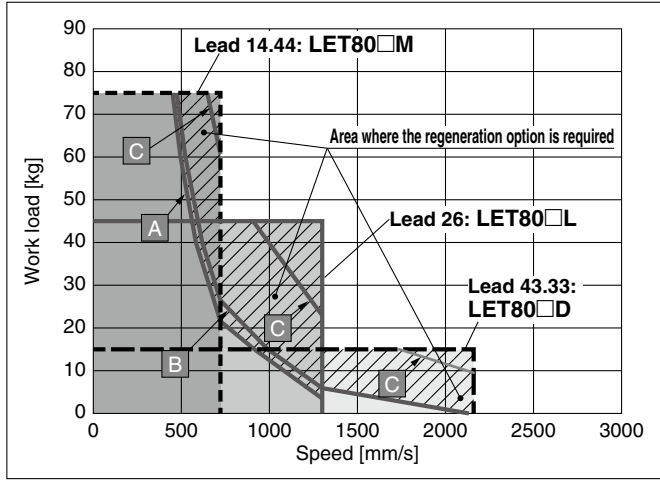


<Dynamic allowable moment>
(LET100)

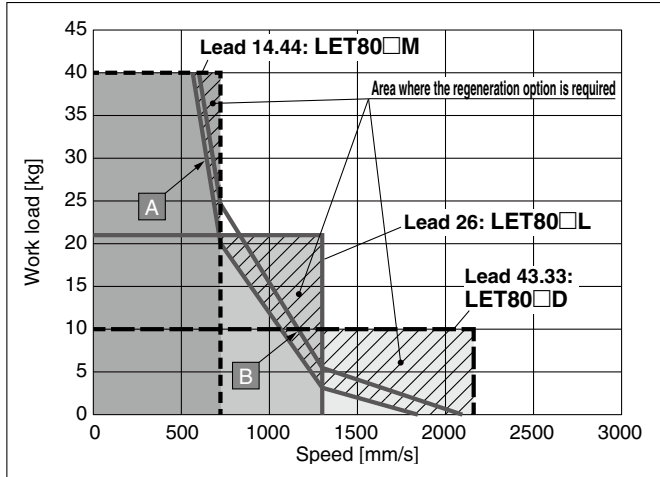
Speed-Work Load Graph/Required Conditions for the Regeneration Option (Guide)

LET80/Belt Drive

Horizontal

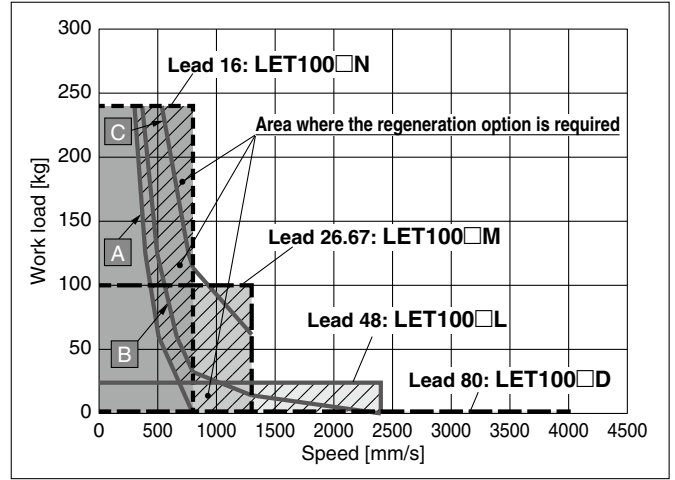


Vertical

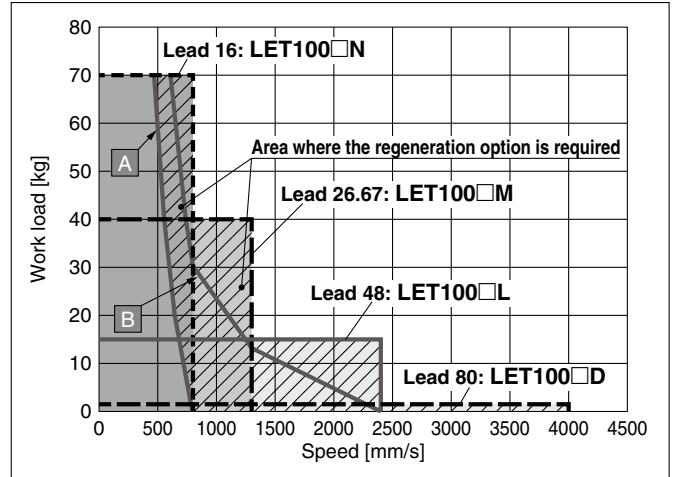


LET100/Belt Drive

Horizontal



Vertical



Required conditions for the regeneration option (For the LET□□(S/T)□)

- * The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)
- * Regeneration option "C" cannot be used for the LECSA.

Regenerative resistor selection (For the LET80□V8)

- * When using the LET80□V8, download the "AC servo drive capacity selection program/ SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
- * The regenerative resistor should be provided by the customer.

Regeneration Option Models

| Operating condition | Regenerative condition | Regeneration option |
|---------------------|------------------------|---------------------|
| A | Duty ratio 100% | LEC-MR-RB-032 |
| B | | LEC-MR-RB-12 |
| C | | LEC-MR-RB-32 |

Applicable Motors/Drivers

| Model | Applicable model | |
|----------|------------------|--|
| | Motor | Servopack (SMC driver) |
| LET80□V8 | SGMJV-04A3A | SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8) |

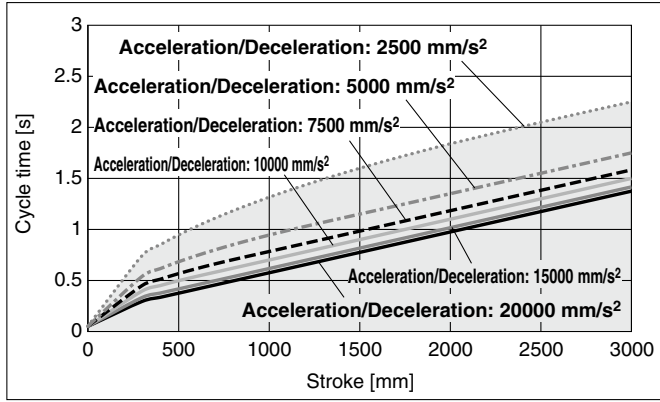
LET-X11 Series

AC Servo Motor

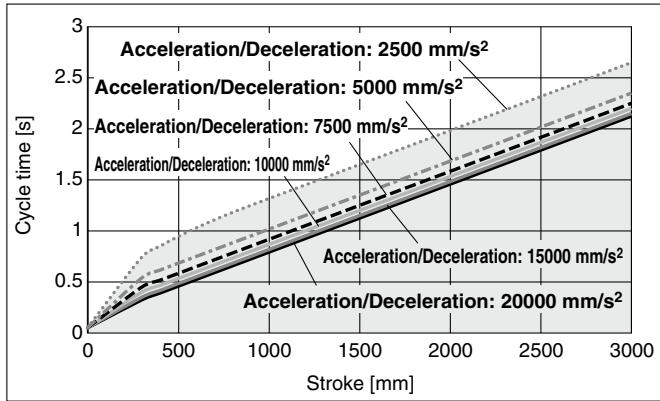
Cycle Time Graph (Guide)

LET80/Belt Drive

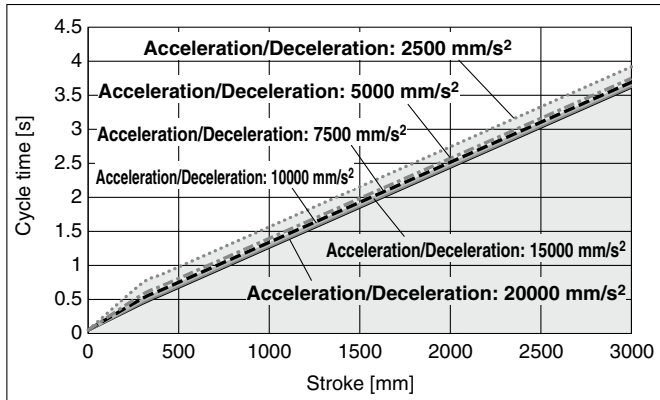
LET80□D



LET80□L

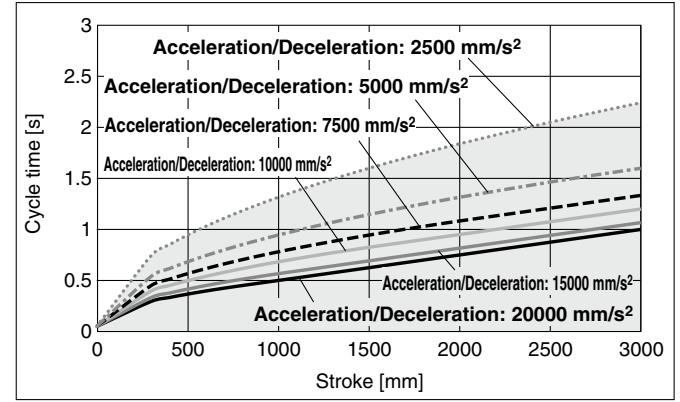


LET80□M

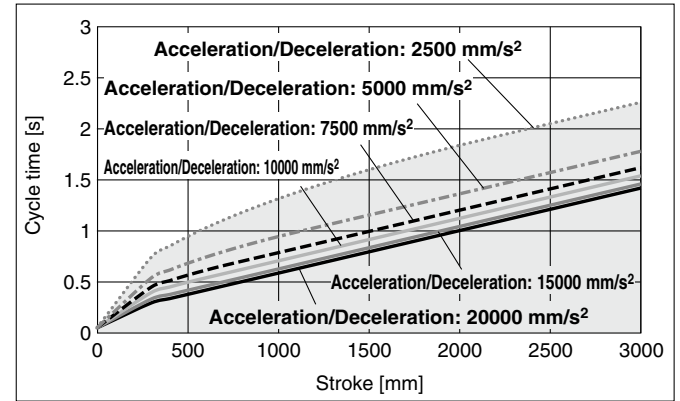


LET100/Belt Drive

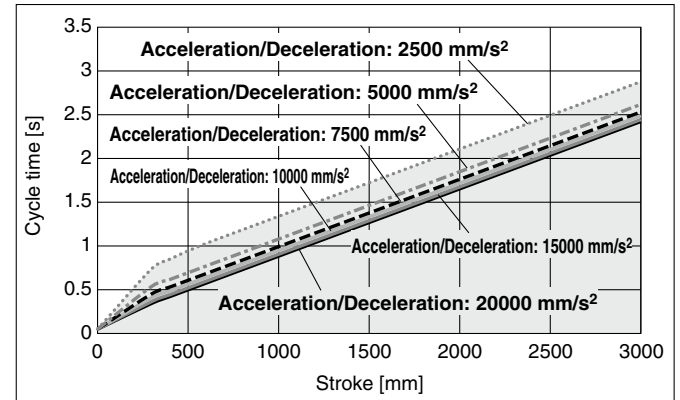
LET100□D



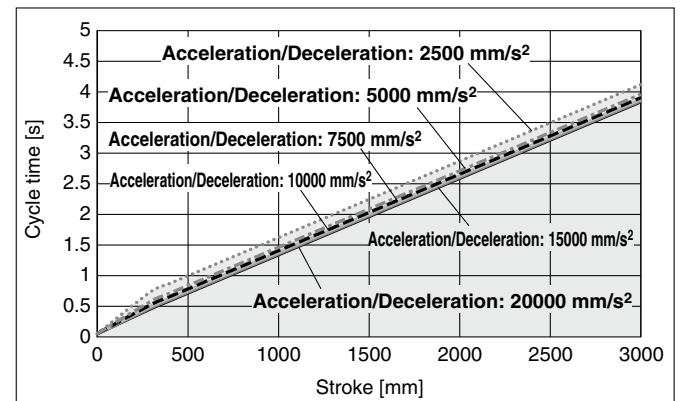
LET100□L



LET100□M



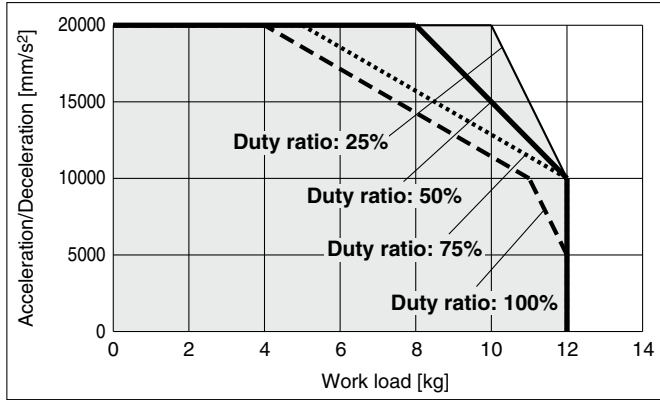
LET100□N



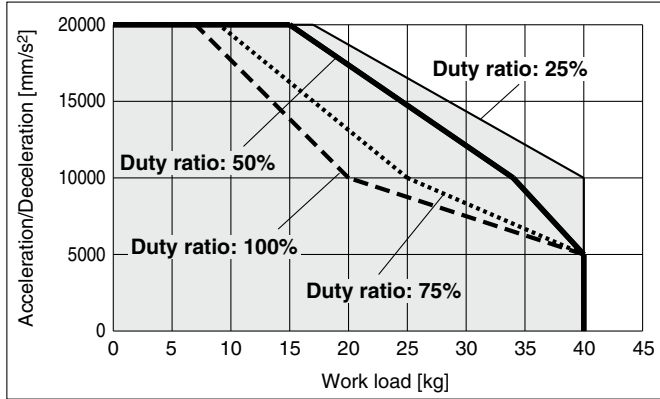
Work Load–Acceleration/Deceleration Graph (Guide)

LET80/Belt Drive: Horizontal

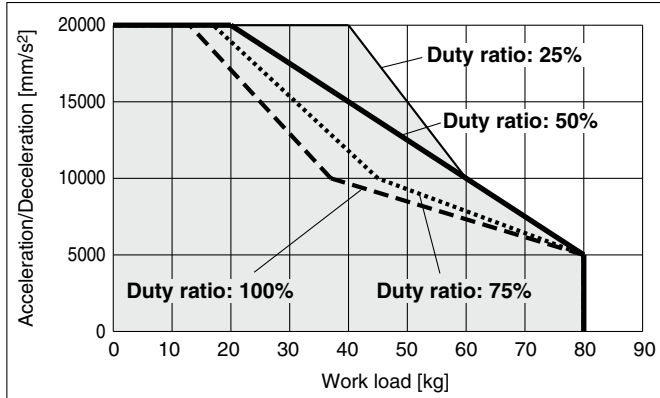
LET80□S4D



LET80□S4L

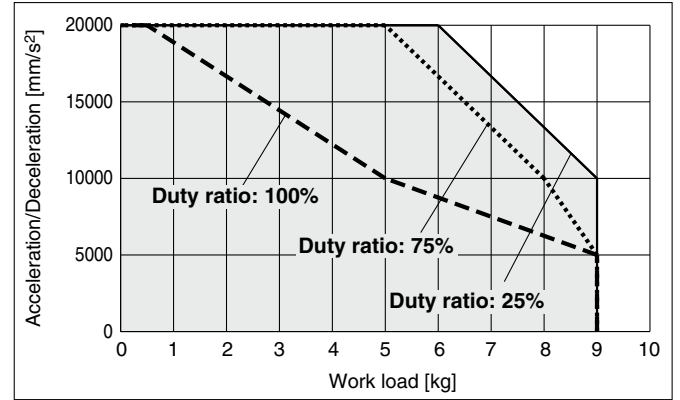


LET80□S4M

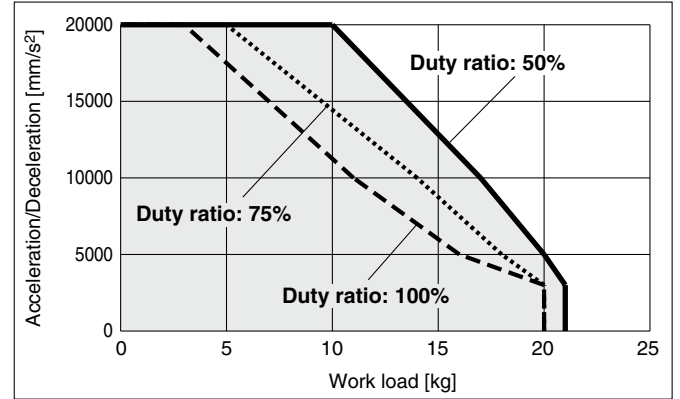


LET80/Belt Drive: Vertical

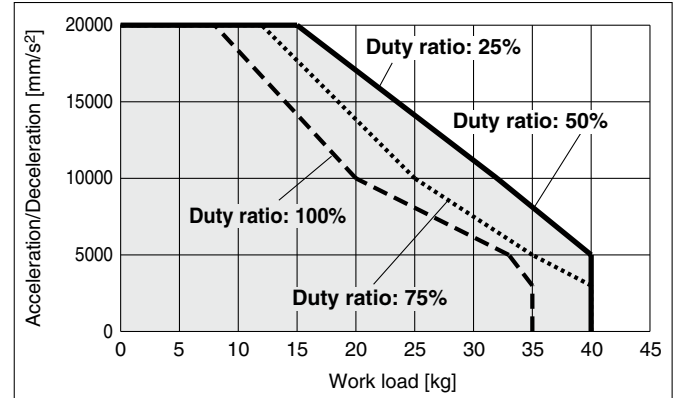
LET80□S4D



LET80□S4L



LET80□S4M



Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

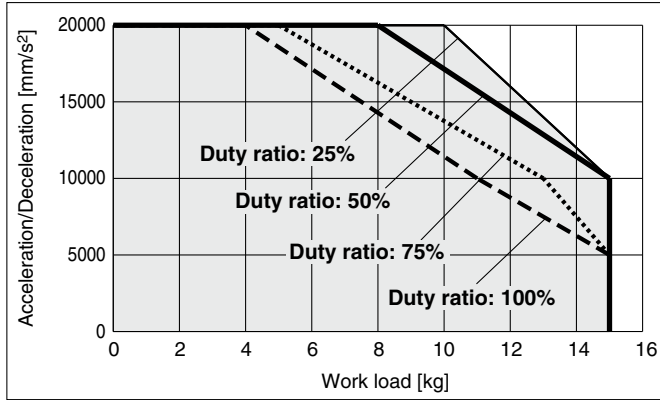
LET-X11 Series

AC Servo Motor

Work Load–Acceleration/Deceleration Graph (Guide)

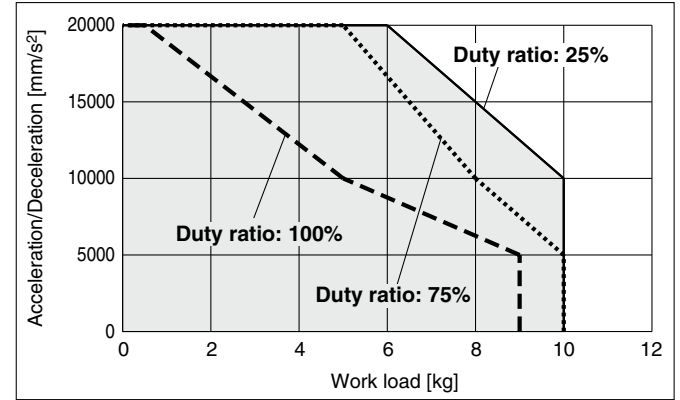
LET80/Belt Drive: Horizontal

LET80□T8D

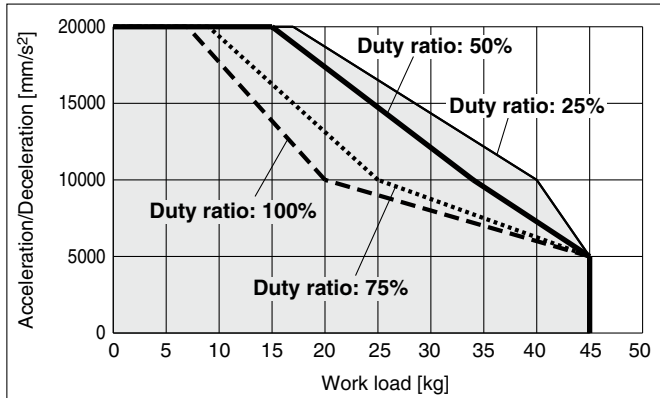


LET80/Belt Drive: Vertical

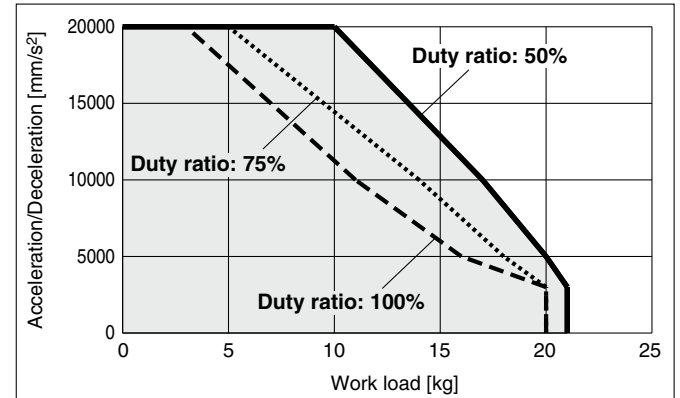
LET80□T8D



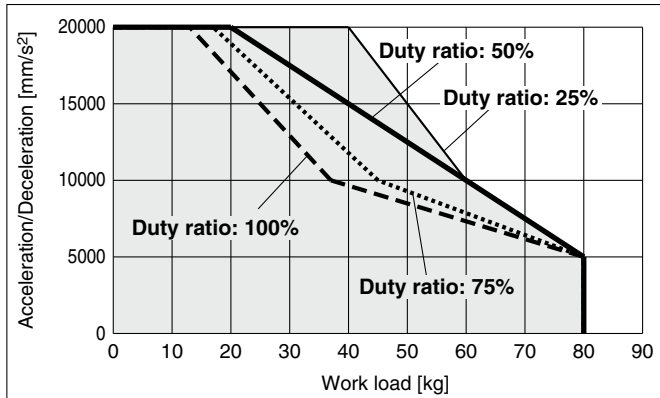
LET80□T8L



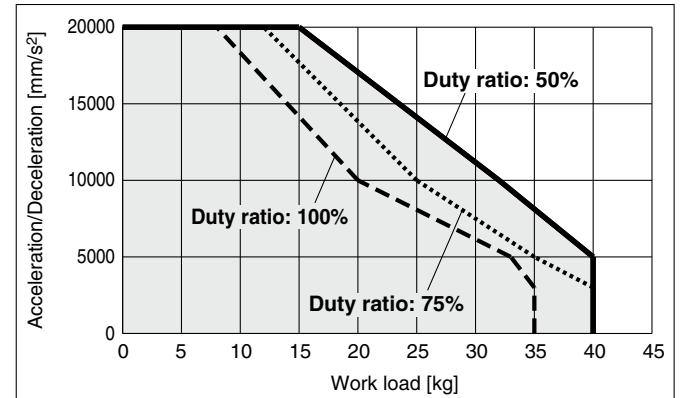
LET80□T8L



LET80□T8M



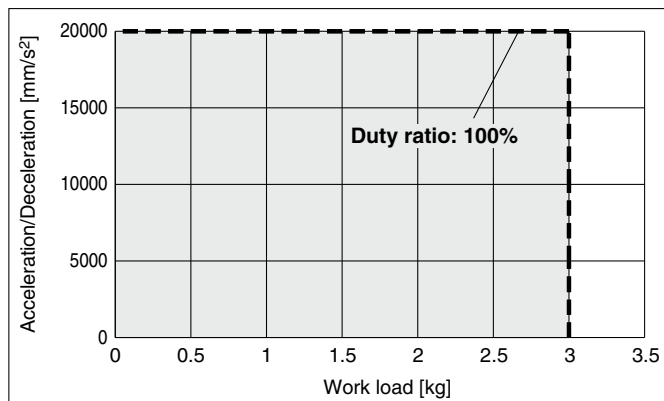
LET80□T8M



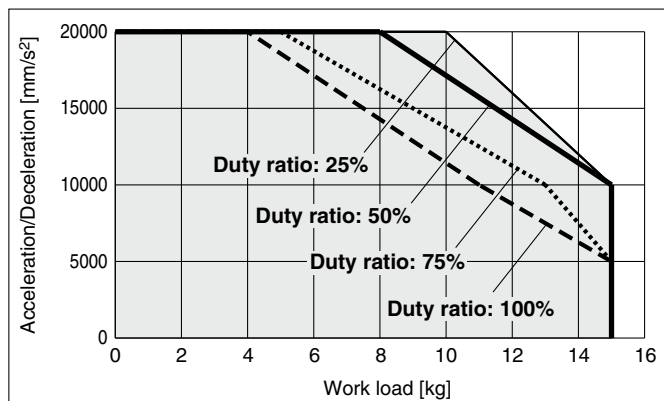
Work Load–Acceleration/Deceleration Graph (Guide)

LET80/Belt Drive: Horizontal

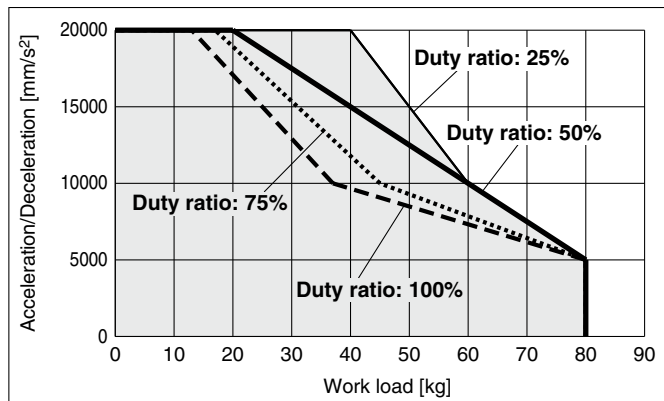
LET80□V8D



LET80□V8L

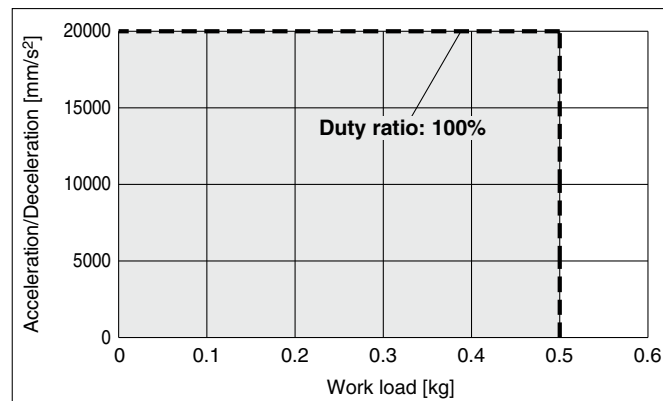


LET80□V8M

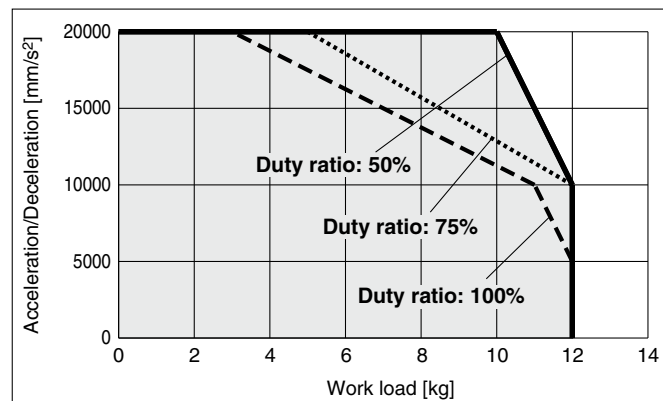


LET80/Belt Drive: Vertical

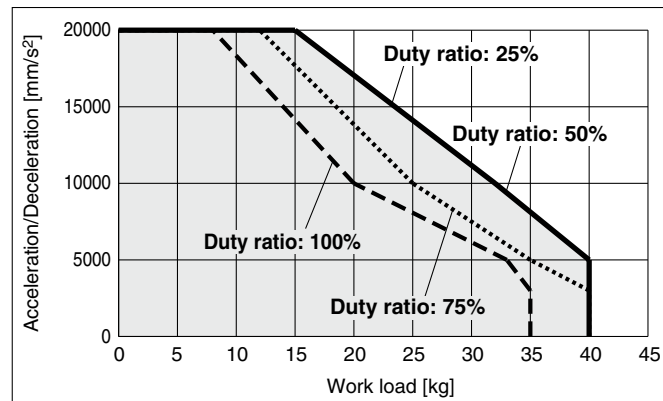
LET80□V8D



LET80□V8L



LET80□V8M



Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

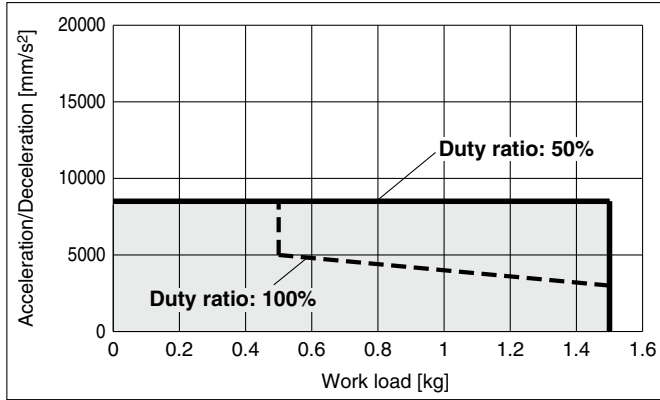
LECY□ Series

Specific Product Precautions

Work Load–Acceleration/Deceleration Graph (Guide)

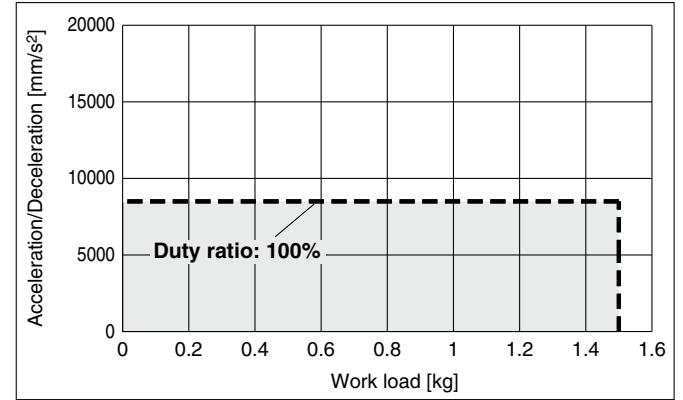
LET100/Belt Drive: Horizontal

LET100□T9D

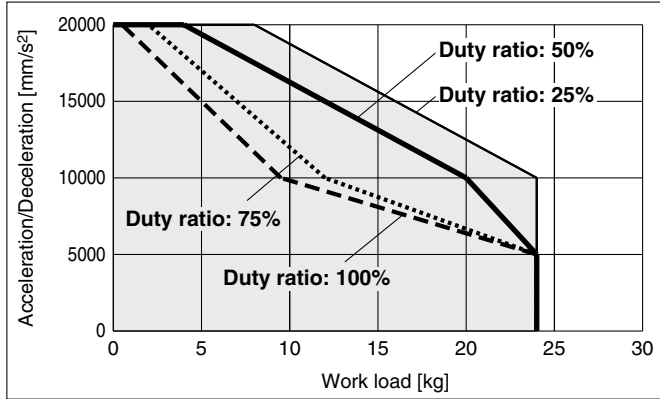


LET100/Belt Drive: Vertical

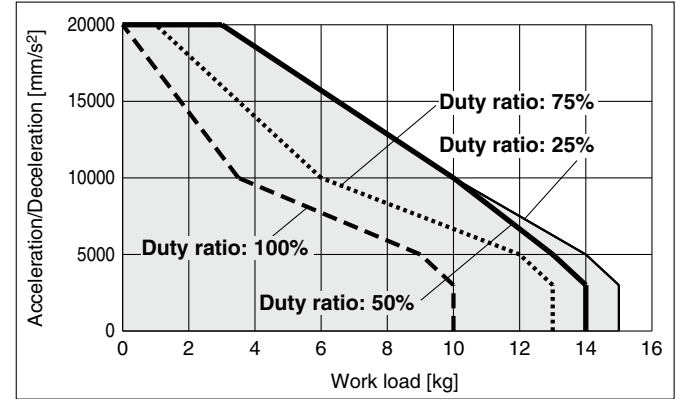
LET100□T9D



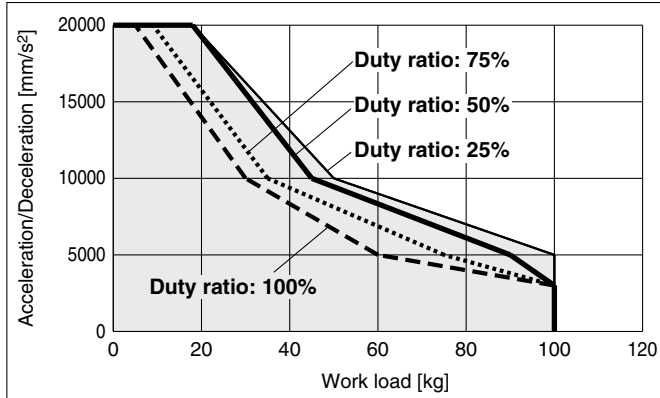
LET100□T9L



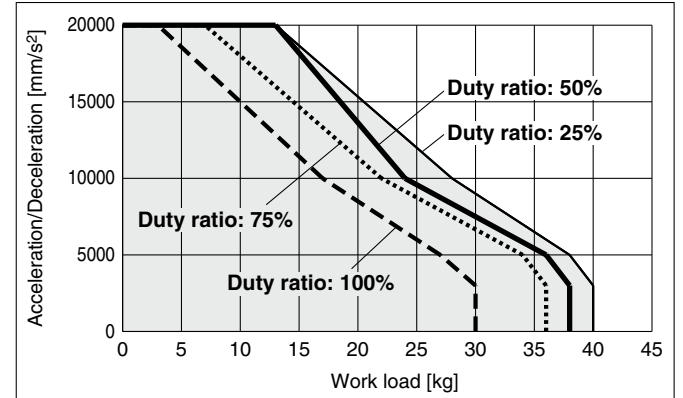
LET100□T9L



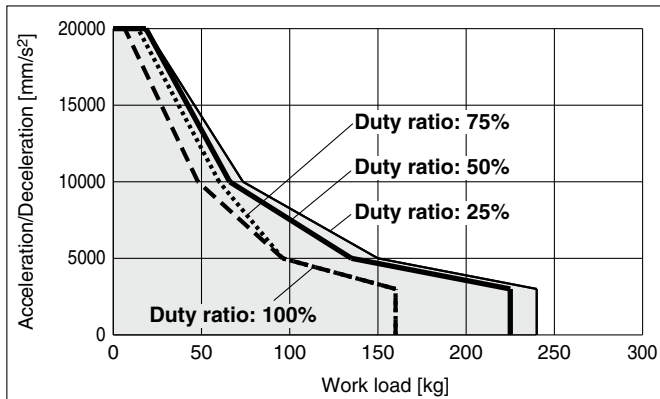
LET100□T9M



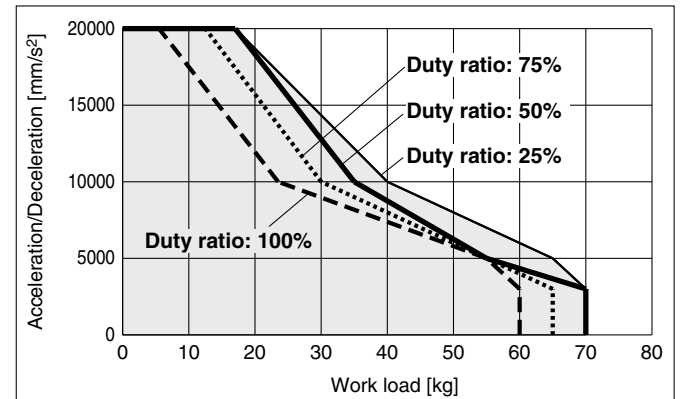
LET100□T9M



LET100□T9N

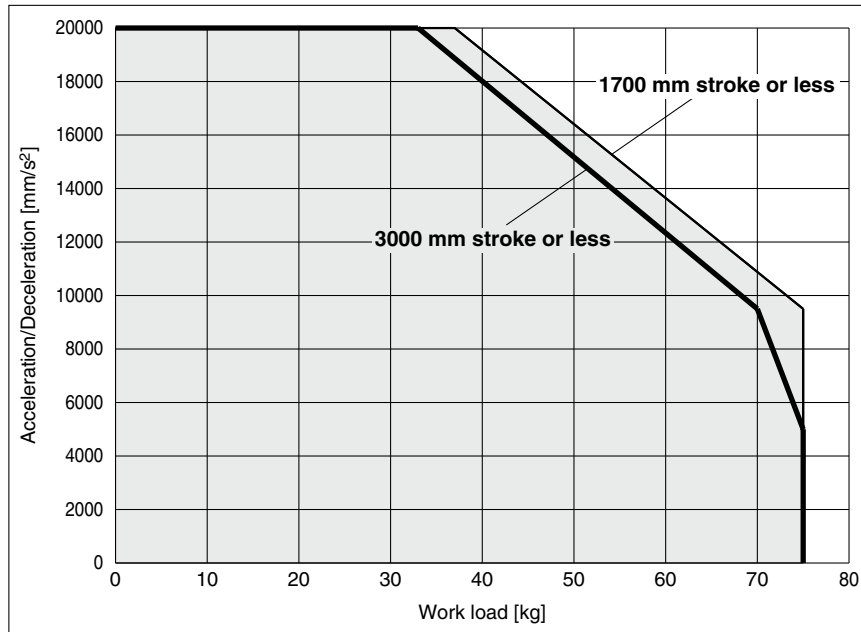


LET100□T9N

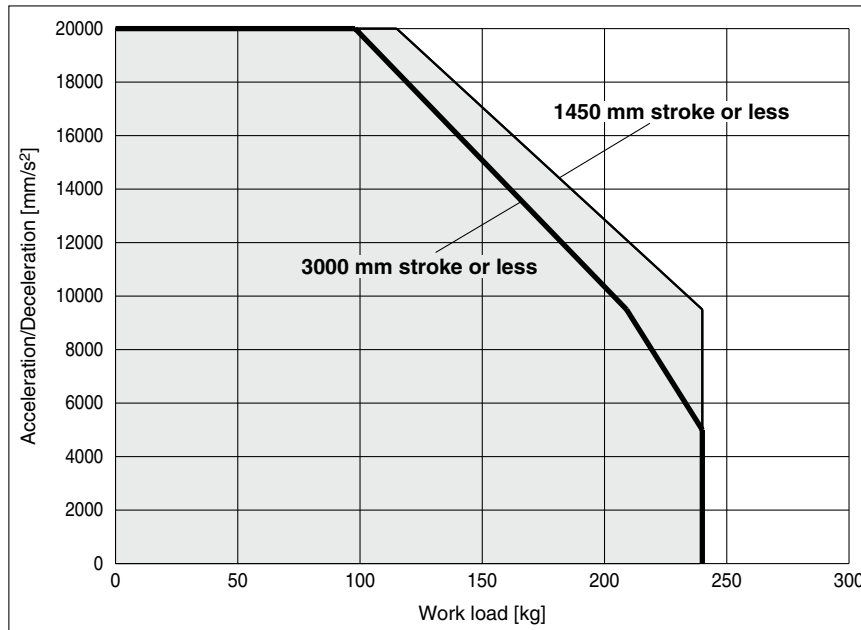


Work Load by Stroke–Acceleration/Deceleration Graph (Guide)

LET80



LET100



Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

LET-X11 Series

AC Servo Motor

* These graphs show the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the "Calculation of Guide Load Factor" or the Electric Actuator Model Selection Software for confirmation.

Dynamic Allowable Moment

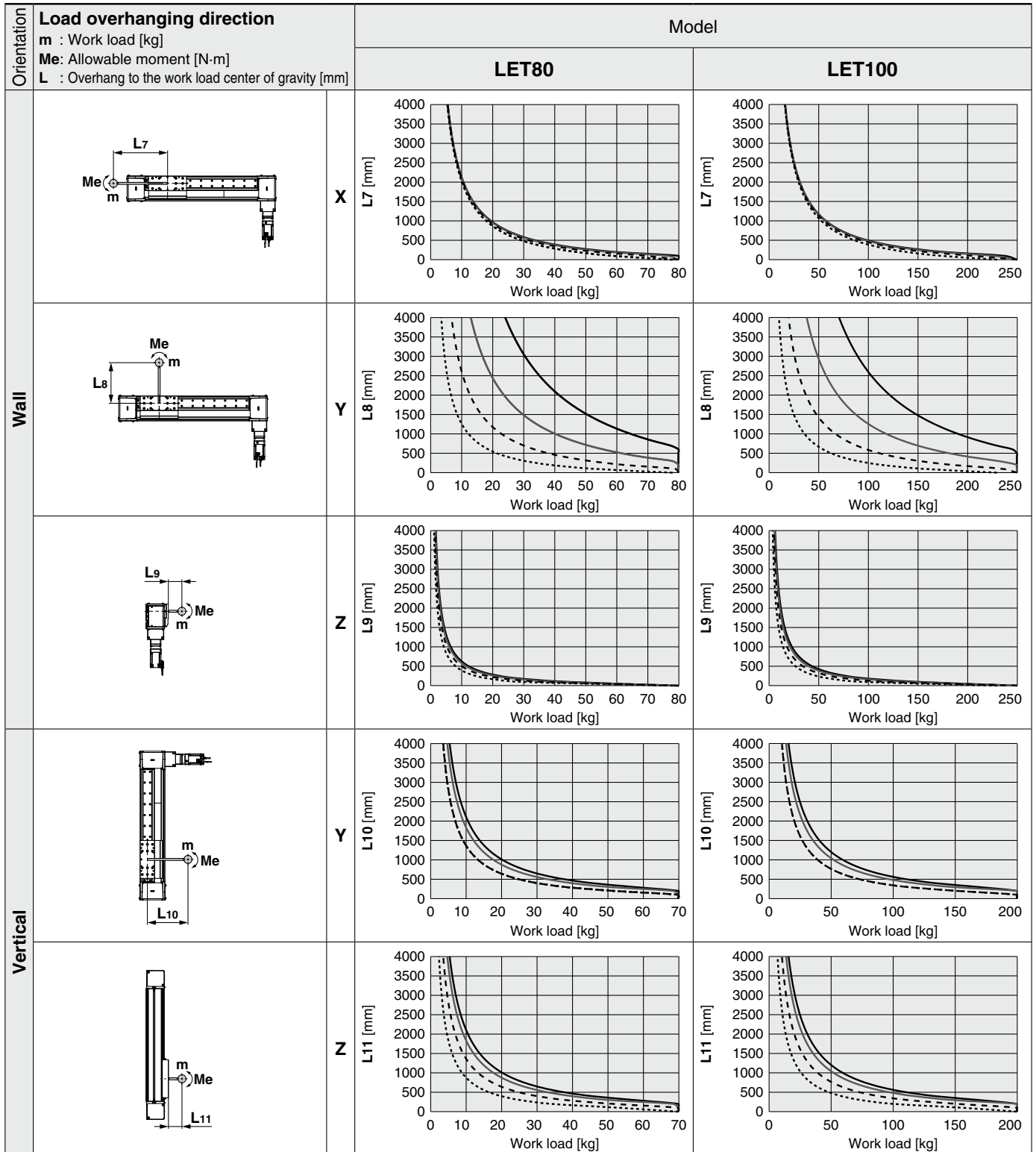
Acceleration/Deceleration ——— 2500 mm/s² ——— 5000 mm/s² - - - - 10000 mm/s² ······ 20000 mm/s²

| Orientation | | Load overhanging direction | Model | |
|-------------|---|---|-------|--------|
| | | m : Work load [kg] Me : Allowable moment [N·m] L : Overhang to the work load center of gravity [mm] | LET80 | LET100 |
| Horizontal | X | | | |
| | Y | | | |
| | Z | | | |
| Bottom | X | | | |
| | Y | | | |
| | Z | | | |

* These graphs show the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the "Calculation of Guide Load Factor" or the Electric Actuator Model Selection Software for confirmation.

Dynamic Allowable Moment

Acceleration/Deceleration ——— 2500 mm/s² ——— 5000 mm/s² - - - - 10000 mm/s² ······ 20000 mm/s²



Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

Calculation of Guide Load Factor

- Decide operating conditions.

Model: LET-X11

Size: 80/100

Mounting orientation: Horizontal/Bottom/Wall/Vertical

Acceleration [mm/s^2]: **a**

Work load [kg]: **m**

Work load center position [mm]: **Xc/Yc/Zc**

- Select the target graph while referencing the model, size, and mounting orientation.

- Based on the acceleration and work load, find the overhang [mm]: **Lx/Ly/Lz** from the graph.

- Calculate the load factor for each direction.

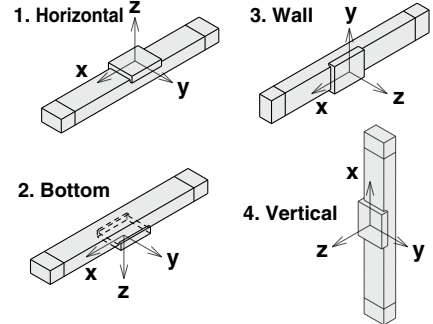
$$\alpha_x = X_c/L_x, \alpha_y = Y_c/L_y, \alpha_z = Z_c/L_z$$

- Confirm the total of α_x , α_y , and α_z is 1 or less.

$$\alpha_x + \alpha_y + \alpha_z \leq 1$$

When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

Mounting orientation



Example

- Operating conditions

Model: LET-X11

Size: 100

Mounting orientation: Horizontal

Acceleration [mm/s^2]: 5000

Work load [kg]: 100

Work load center position [mm]: **Xc = 0, Yc = 50, Zc = 200**

- Select the graph on the top right side of page 17.

- Lx = 500 mm, Ly = 200 mm, Lz = 1450 mm**

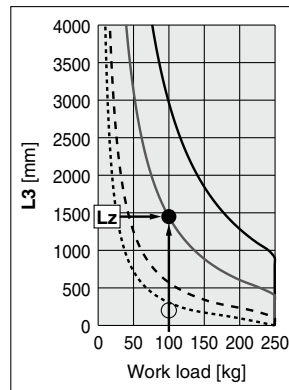
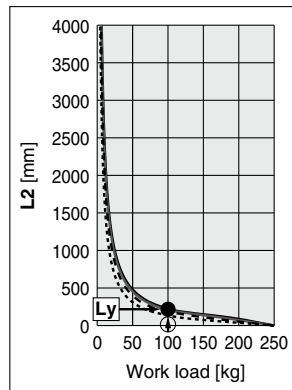
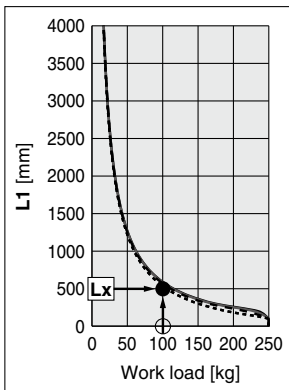
- The load factor for each direction can be found as follows.

$$\alpha_x = 0/500 = 0$$

$$\alpha_y = 50/200 = 0.25$$

$$\alpha_z = 200/1450 = 0.14$$

- $\alpha_x + \alpha_y + \alpha_z = 0.39 \leq 1$**



Large Slider Type Belt Drive

LET-X11 Series



How to Order

Driver LEC□□ Series

LET **100** **FR** **T9** **D** - **300** - **S** **2** **B2** - **X11**

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

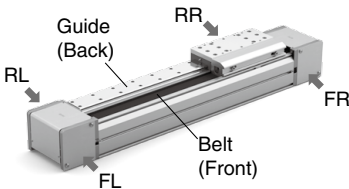
① Size

| |
|-----|
| 80 |
| 100 |

② Motor mounting position

| | |
|----|-------------|
| FR | Right |
| FL | Left |
| RR | Rear, Right |
| RL | Rear, Left |

* The motor can be selected from 4 positions on the left and right, with the belt side facing the front and the guide side facing the back.



⑥ Motor option

| | |
|-----|----------------|
| Nil | Without option |
| B | With lock |

⑦ Cable type*1 *2

| | |
|-----|--------------------------|
| Nil | Without cable |
| S | Standard cable |
| R | Robotic cable (Flexible) |

*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
 *2 Standard connector orientation of cable
 · S4, T□: "Counter axis side (B)"
 · V8: "Axis side (A)"
 (Refer to pages 35 and 43 for details.)

③ Motor type

| Symbol | Motor type | Output [W] | Actuator size | Compatible drivers |
|--------|--------------------------------------|------------|---------------|-------------------------------------|
| S4 | AC servo motor (Incremental encoder) | 400 | 80 | LECSA2-S4 |
| T8 | AC servo motor (Absolute encoder) | 400 | | LECSB2-T8 |
| V8 | | | | LECSA2-T8 |
| T9 | | 750 | 100 | LECSB2-T9 LECSA2-T9 LECSA2-T9 |

④ Lead [mm] (Reducer type)

| Symbol | LET80 | LET100 | Reduction ratio |
|--------|-------|--------|-----------------|
| D | 43.33 | 80 | 1/3 |
| L | 26 | 48 | 1/5 |
| M | 14.44 | 26.67 | 1/9 |
| N | — | 16 | 1/15 |

* "N" cannot be selected for the LET80.

⑤ Stroke [mm]

| | |
|------|------|
| 300 | 300 |
| to | to |
| 3000 | 3000 |

* For details, refer to the applicable stroke table below.

⑧ Cable length [m]*1 *2

| Symbol | Cable length | Motor type | |
|--------|---------------|------------|----|
| | | S4/T8/T9 | V8 |
| Nil | Without cable | ● | ● |
| 2 | 2 | ● | |
| 3 | 3 | | ● |
| 5 | 5 | ● | ● |
| A | 10 | ● | ● |
| C | 20 | | ● |

*1 The selectable length varies depending on the motor type.
 *2 The shape of the cable differs depending on the motor type.

⑨ Driver type*1

| Compatible drivers | Power supply voltage [V] |
|--------------------|--------------------------|
| Nil | Without driver |
| A2 | 200 to 230 |
| B2 | 200 to 240 |
| C2 | 200 to 230 |
| S2 | 200 to 240 |
| M2 | 200 to 230 |
| U2 | 200 to 230 |

*1 When a driver type is selected, a cable is included. Select the cable type and cable length.

⑩ I/O cable length [m]*1

| | |
|-----|--------------------------------|
| Nil | Without cable |
| H | Without cable (Connector only) |
| 1 | 1.5 |

*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to pages 36 and 44 if an I/O cable is required.

Applicable Stroke Table

| Size | Stroke [mm] | | | | | | | | | | | | |
|--------|-------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1500 | 2000 | 2500 | 3000 |
| 80/100 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

●: Standard

* Please contact SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 24 to 27.

Compatible Drivers

| Driver type | Pulse input type/ Positioning type | Pulse input type/ Positioning type | CC-Link direct input type | SSCNET III/H type | MECHATROLINK-II type | MECHATROLINK-III type |
|--------------------------|------------------------------------|--|---------------------------------|---------------------------|---|-----------------------|
| | | | | | | |
| Series | LECSA | LECSB-T | LECSA2-T | LECSA2-T | LECYM | LECYU |
| Number of point tables | Up to 7 | Up to 255 | Up to 255 (2 stations occupied) | — | — | — |
| Pulse input | ○ | ○ | — | — | — | — |
| Applicable network | — | — | CC-Link | SSCNET III/H | MECHATROLINK-II | MECHATROLINK-III |
| Control encoder | Incremental 17-bit encoder | Absolute 22-bit encoder | Absolute 18-bit encoder | Absolute 22-bit encoder | Absolute 20-bit encoder | |
| Communication function | USB communication | USB communication, RS422 communication | — | USB communication | USB communication, RS-422 communication | |
| Power supply voltage [V] | 200 to 230 VAC (50/60 Hz) | 200 to 240 VAC (50/60 Hz) | 200 to 230 VAC (50/60 Hz) | 200 to 240 VAC (50/60 Hz) | 200 to 230 VAC (50/60 Hz) | |
| Reference page | 31 | | | | 40 | |

LET-X11 Series

AC Servo Motor

Specifications

| Model | | LET80□(S4/T8/V8) | | | LET100□T9 | | | | |
|---|---|---|------|-----------------|---|------|-------|------|-----|
| Actuator specifications | Stroke [mm]*1 | 300 to 1000 (Every 100st), 1200, 1500 to 3000 (Every 500st) | | | 300 to 1000 (Every 100st), 1200, 1500 to 3000 (Every 500st) | | | | |
| | Max. work load [kg] | Horizontal | 15 | 45 | 75 | 1.5 | 25 | 100 | 240 |
| | | Vertical | 10 | 21 | 40 | 1.5 | 15 | 40 | 70 |
| | Speed [mm/s]*2 | 2160 | 1300 | 720 | 4000 | 2400 | 1330 | 800 | |
| | Max. acceleration/deceleration [mm/s ²] | 20000 | | | | | | | |
| | Positioning repeatability [mm] | ±0.08 | | | | | | | |
| | Equivalent lead [mm] | 43.33 | 26 | 14.44 | 80 | 48 | 26.67 | 16 | |
| | Reduction ratio | 1/3 | 1/5 | 1/9 | 1/3 | 1/5 | 1/9 | 1/15 | |
| | Impact/Vibration resistance [m/s ²]*3 | 50/5 | | | | | | | |
| | Actuation type | Belt | | | | | | | |
| | Guide type | Linear guide | | | | | | | |
| | Static allowable moment*4 [N·m] | Mep (Pitching) | 380 | | | 1157 | | | |
| | | Mey (Yawing) | 380 | | | 1157 | | | |
| | | Mer (Rolling) | 114 | | | 529 | | | |
| Operating temperature range [°C] | 5 to 40 | | | | | | | | |
| Operating humidity range [%RH] | 90 or less (No condensation) | | | | | | | | |
| Regeneration option | May be required depending on speed and work load | | | | | | | | |
| Enclosure | IP20 | | | | | | | | |
| Electric specifications | Motor output [W]/Size [mm] | 400□60 | | | 750□80 | | | | |
| | Motor type | AC servo motor (200 VAC) | | | | | | | |
| | Encoder*7 | Motor type S4: Incremental 17-bit encoder (Resolution: 131072 p/rev) | | | Motor type T9: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB2-T□, LECSS2-T□) | | | | |
| | | Motor type T8: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB2-T□, LECSS2-T□) | | | Motor type T9: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC2-T□) | | | | |
| | | Motor type T8: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC2-T□) | | | Motor type T9: Absolute 20-bit encoder (Resolution: 1048576 p/rev) | | | | |
| Motor type V8: Absolute 20-bit encoder (Resolution: 1048576 p/rev) | | | | | | | | | |
| Power [W]*5 | Max. power 1275 | | | Max. power 1100 | | | | | |
| Lock unit specifications | Type*6 | Non-magnetizing lock | | | | | | | |
| | Holding force | The rated torque of the lock is the same as the rated torque of the motor. (force x motor inverse efficiency at 100%) | | | | | | | |
| | Power [W] at 20°C | Motor type S4: 7.9 Motor type T8: 7.9 Motor type V8: 6.0 | | | Motor type T9: 10 | | | | |
| | Rated voltage [V] | 24 VDC ⁰ / _{-10%} | | | | | | | |

*1 Please contact SMC for non-standard strokes as they are produced as special orders.

*2 For details, refer to the "Speed-Work Load Graph (Guide)" on page 10.

*3 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

*4 The static allowable moment is the amount of static moment which can be applied to the actuator when it is stopped.
If the product is exposed to impact or repeated load, be sure to take adequate safety measures when using the product.

*5 Indicates the max. power during operation (including the driver). When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

*6 Only when motor option "With lock" is selected
*7 The resolution will change depending on the driver type.

* Sensor magnet position is located in the table center.
For detailed dimensions, refer to the "Auto Switch Mounting Position" on page 24.

* Do not allow collisions at either end of the table traveling distance. Also, when performing positioning operation, do not command a range of [LET80: 22 mm, LET100: 25 mm] from both ends.

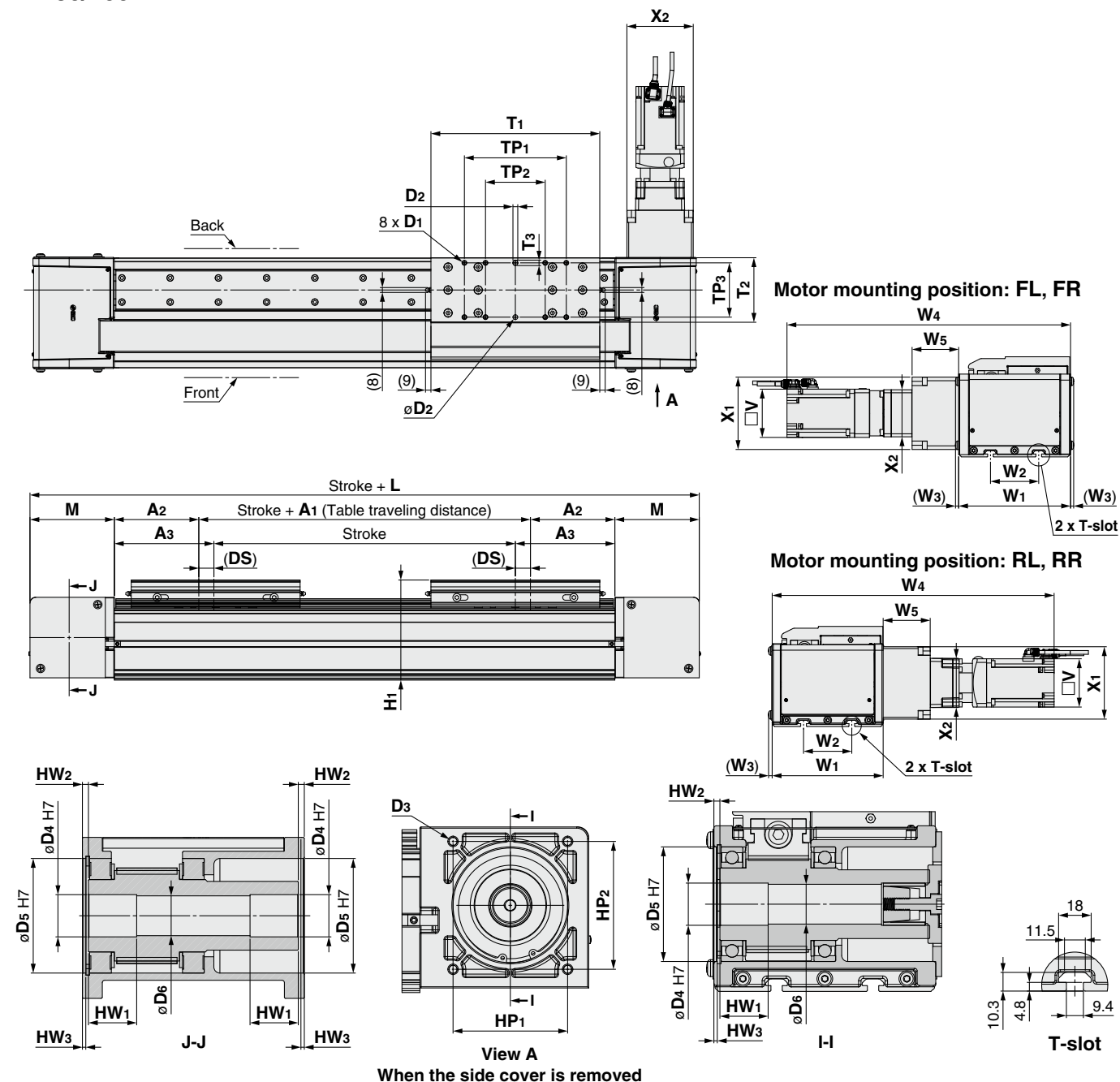
* For the manufacturing of intermediate strokes, please contact SMC. (LET80/Manufacturable stroke range: 300 to 3000 mm, LET100/Manufacturable stroke range: 300 to 3000 mm)

Weight

| Size | Motor type | Lead | Stroke [mm] | | | | | | | | | | | | | Additional weight with lock [kg] |
|------|------------|------|-------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------------------------------|
| | | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1500 | 2000 | 2500 | 3000 | |
| 80 | S4, T8 | D | 17.3 | 19.0 | 20.6 | 22.1 | 23.8 | 25.5 | 27.1 | 28.8 | 32.0 | 36.9 | 45.2 | 53.4 | 61.5 | 0.4 |
| | | L, M | 18.5 | 20.2 | 21.9 | 23.4 | 25.1 | 26.7 | 28.3 | 30.0 | 33.3 | 38.1 | 46.4 | 54.6 | 62.7 | |
| | V8 | D | 17.2 | 18.9 | 20.5 | 22.0 | 23.7 | 25.4 | 27.0 | 28.7 | 31.9 | 36.8 | 45.1 | 53.3 | 61.4 | 0.6 |
| | | L, M | 18.4 | 20.1 | 21.8 | 23.3 | 25.0 | 26.6 | 28.2 | 29.9 | 33.2 | 38.0 | 46.3 | 54.5 | 62.6 | |
| 100 | T9 | D, L | 43.8 | 46.7 | 49.7 | 52.4 | 55.3 | 58.1 | 61.1 | 64.0 | 69.7 | 78.3 | 92.7 | 107.1 | 121.5 | 1.0 |
| | | M | 45.2 | 48.0 | 51.0 | 53.7 | 56.6 | 59.5 | 62.4 | 65.3 | 71.0 | 79.6 | 94.0 | 108.4 | 122.8 | |
| | | N | 45.6 | 48.4 | 51.4 | 54.1 | 57.0 | 59.9 | 62.8 | 65.7 | 71.4 | 80.0 | 94.4 | 108.8 | 123.2 | |

Dimensions: Belt Drive

LET80/100-X11



| Size | L | A ₁ | A ₂ | A ₃ | DS | M | H ₁ | D ₁ | D ₂ | D ₃ | D ₄ | D ₅ |
|------|-----|----------------|----------------|----------------|----|-----|----------------|--------------------|----------------|--------------------|----------------|----------------|
| 80 | 440 | 44 | 100 | 122 | 22 | 98 | 109.4 | M5 x 0.8 depth 7.5 | 6 H7 depth 5 | M6 x 1.0 depth 12 | 25 | 62 |
| 100 | 600 | 50 | 140 | 165 | 25 | 135 | 166 | M8 x 1.25 depth 12 | 8 H7 depth 7 | M8 x 1.25 depth 12 | 35 | 95 |

| Size | D ₆ | W ₁ | W ₂ | W ₃ | HP ₁ | HP ₂ | HW ₁ | HW ₂ | HW ₃ | TP ₁ | TP ₂ | TP ₃ | T ₁ | T ₂ | T ₃ | V |
|------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----|
| 80 | 23 | 119 | 40 | 3.9 | 86 | 60 | 35 | 3 | 2.4 | 116 | 76 | 55 | 200 | 68 | 7 | 60 |
| 100 | 33 | 184 | 80 | 5.2 | 95 | 106 | 40 | 5 | 2.8 | 169 | 99 | 90 | 280 | 107 | 9 | 80 |

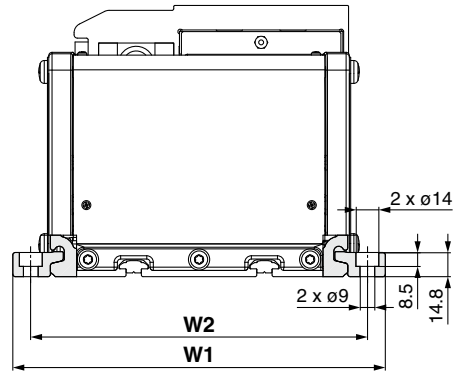
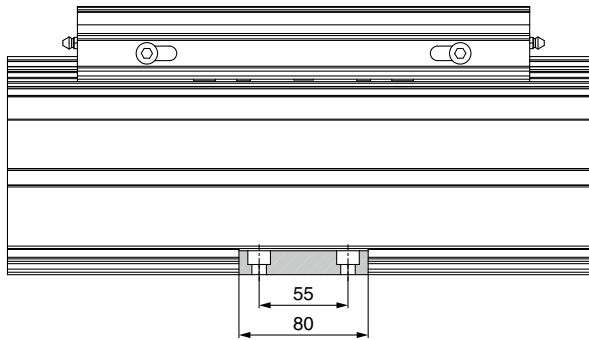
| Size | Motor type | Lead | W ₄ | | W ₅ | X ₁ | X ₂ |
|------|------------|------|----------------|-----------|----------------|----------------|----------------|
| | | | Without lock | With lock | | | |
| 80 | S4 | D | 355.5 | 384.1 | 53 | 78 | 52 |
| | | L, M | 392.5 | 421.1 | 73 | | 81 |
| | T8 | D | 343.6 | 380.4 | 53 | 78 | 52 |
| | | L, M | 380.6 | 417.4 | 73 | | 81 |
| | V8 | D | 343.8 | 383.8 | 53 | 78 | 52 |
| | | L, M | 380.8 | 420.8 | 73 | | 81 |
| 100 | T9 | D, L | 468.3 | 508.6 | 78 | 120 | 81 |
| | | M | 477.8 | 518.1 | 83.5 | | 101 |
| | | N | 490.3 | 530.6 | | | |

LET-X11 Series

AC Servo Motor

Side Supports

MY-S50A



Side Support Intervals

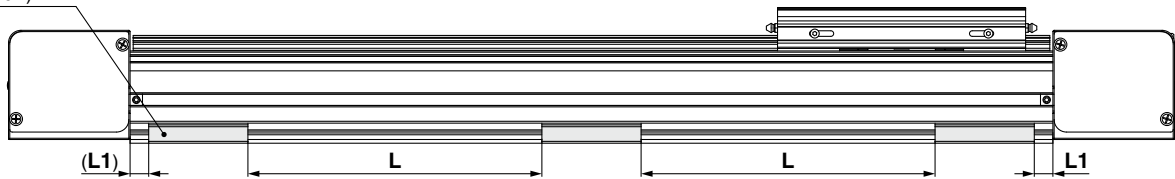
| Size | W1 | W2 |
|------|-----|-----|
| 80 | 162 | 140 |
| 100 | 228 | 206 |

* The side supports consist of a set of right and left brackets.

Usage Guide for Side Supports

When mounting with the side supports, be sure to use the number of side supports (N) and the support spacing (L1) shown in the figure and table below as a guide.

Number of side supports: N
(MY-S50A)



* Number of side supports: N is the combined number of left and right supports.

| Stroke | Screw size | Max. tightening torque [N·mm] | L1 [mm] | Number of side supports: N [pcs.] | |
|------------|------------|-------------------------------|---------|-----------------------------------|-----|
| | | | | 80 | 100 |
| Up to 600 | M8 x 1.25 | 12.5 | 15 | 6 | 8 |
| Up to 900 | | | | 8 | 10 |
| Up to 1200 | | | | 10 | 12 |
| Up to 2000 | | | | 12 | 14 |
| Up to 3000 | | | | 14 | 16 |

* Secure the side supports using the support spacing (L) in the table above.

Electric Actuator Mounting T-nuts

The T-nuts are used for mounting using the T-slots of the actuator.

When mounting with T-nuts only, mount the product while referring to ⑨ (Mount using more than the number of T-nuts used to secure the body.) in the "Handling" section of the Specific Product Precautions.

T-nut (12 pcs.)

LET - T 80 - 08

① ②

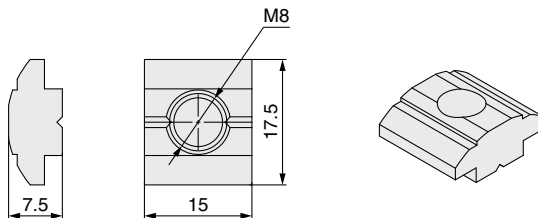
① Size

80

* The T-nuts are the same size for the LET80 and 100.

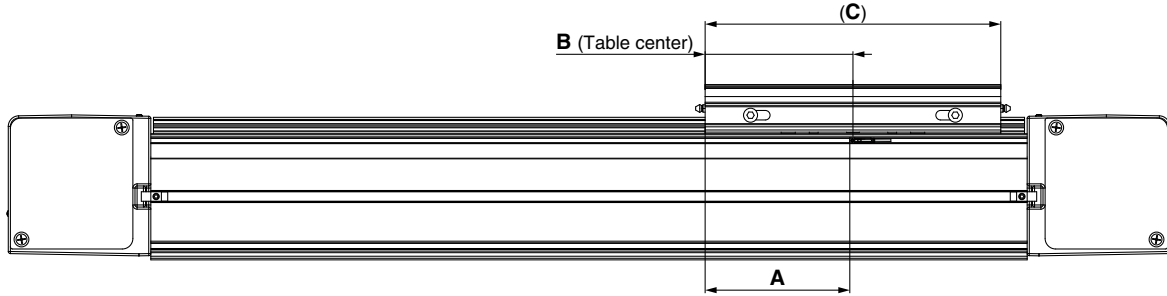
② Thread size

| Symbol | Thread |
|--------|--------|
| 08 | M8 |



LET-X11 Series Auto Switch Mounting

Auto Switch Mounting Position



| Model | Size | A | B | C | Operating range |
|--------|------|-----|-----|-----|-----------------|
| LET80 | 80 | 97 | 100 | 200 | 6 |
| LET100 | 100 | 137 | 140 | 280 | 7 |

[mm]

* The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations (as much as $\pm 30\%$) depending on the ambient environment.

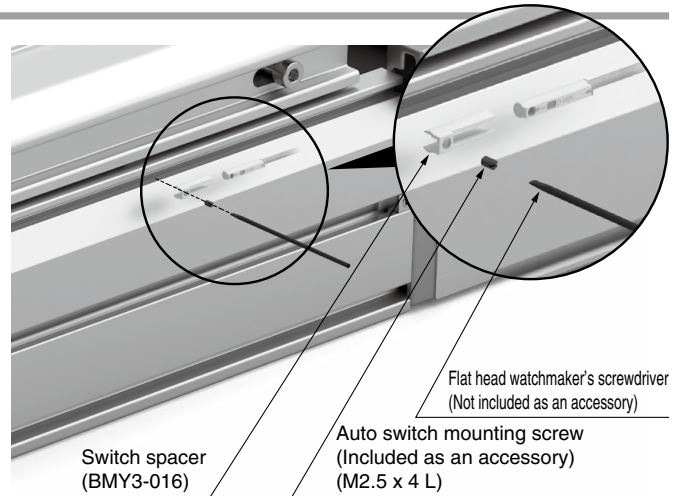
Auto Switch Mounting (Size: 80, 100)

When mounting an auto switch, first, hold a switch spacer between your fingers and press it into the slot. When doing this, confirm that it is set in the correct mounting orientation, or reinsert it if necessary. Next, insert the auto switch into the slot and slide it until it is positioned under the switch spacer.

After confirming the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.

Auto Switch Mounting Screw Tightening Torque [N·m]

| Auto switch model | Tightening torque |
|-----------------------|-------------------|
| D-M9□(V) D-M9□W(V) | 0.10 to 0.15 |



Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

Solid State Auto Switch Direct Mounting Type D-M9N(V)/D-M9P(V)/D-M9B(V)



Refer to the SMC website for details on products that are compliant with international standards.

Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□, D-M9□V (With indicator light) | | | | | | |
|--------------------------------------|---|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model | D-M9N | D-M9NV | D-M9P | D-M9PV | D-M9B | D-M9BV |
| Electrical entry direction | In-line | Perpendicular | In-line | Perpendicular | In-line | Perpendicular |
| Wiring type | 3-wire | | | | 2-wire | |
| Output type | NPN | | PNP | | — | |
| Applicable load | IC circuit, Relay, PLC | | | | 24 VDC relay, PLC | |
| Power supply voltage | 5, 12, 24 VDC (4.5 to 28 V) | | | | — | |
| Current consumption | 10 mA or less | | | | — | |
| Load voltage | 28 VDC or less | | — | | 24 VDC (10 to 28 VDC) | |
| Load current | 40 mA or less | | | | 2.5 to 40 mA | |
| Internal voltage drop | 0.8 V or less at 10 mA (2 V or less at 40 mA) | | | | 4 V or less | |
| Leakage current | 100 μA or less at 24 VDC | | | | 0.8 mA or less | |
| Indicator light | Red LED illuminates when turned ON. | | | | | |
| Standard | CE/UKCA marking | | | | | |

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard spec.



Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model | | D-M9N(V) | D-M9P(V) | D-M9B(V) |
|---|-----------------------------------|----------------------------|----------|----------------------|
| Sheath | Outside diameter [mm] | ø2.6 | | |
| Insulator | Number of cores | 3 cores (Brown/Blue/Black) | | 2 cores (Brown/Blue) |
| | Outside diameter [mm] | ø0.88 | | |
| Conductor | Effective area [mm ²] | 0.15 | | |
| | Strand diameter [mm] | ø0.05 | | |
| Min. bending radius [mm] (Reference values) | | 17 | | |

- * Refer to the **Web Catalog** for solid state auto switch common specifications.
- * Refer to the **Web Catalog** for lead wire lengths.

Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Weight

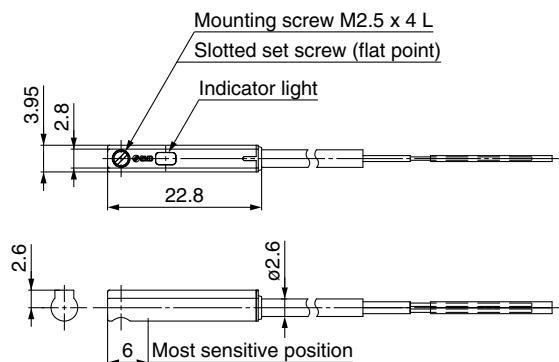
[g]

| Auto switch model | | D-M9N(V) | D-M9P(V) | D-M9B(V) |
|-------------------|-------------|----------|----------|----------|
| Lead wire length | 0.5 m (Nil) | 8 | 7 | 7 |
| | 1 m (M) | 14 | 13 | 13 |
| | 3 m (L) | 41 | 38 | 38 |
| | 5 m (Z) | 68 | 63 | 63 |

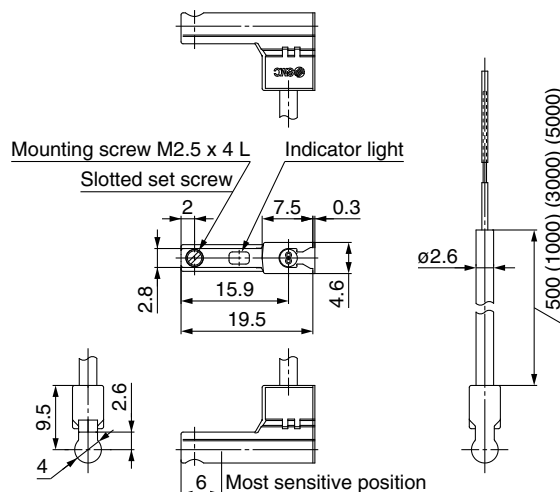
Dimensions

[mm]

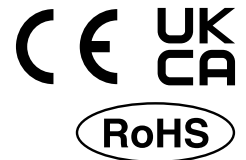
D-M9□



D-M9□V



Normally Closed Solid State Auto Switch Direct Mounting Type D-M9NE(V)/D-M9PE(V)/D-M9BE(V)



Refer to the SMC website for details on products that are compliant with international standards.

PLC: Programmable Logic Controller

Grommet

- Output signal turns on when no magnetic force is detected.
- Can be used for the actuator adopted by the solid state auto switch D-M9 series (excluding special order products)



Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Specifications

| D-M9□E, D-M9□EV (With indicator light) | | | | | | |
|--|---|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model | D-M9NE | D-M9NEV | D-M9PE | D-M9PEV | D-M9BE | D-M9BEV |
| Electrical entry direction | In-line | Perpendicular | In-line | Perpendicular | In-line | Perpendicular |
| Wiring type | 3-wire | | | | 2-wire | |
| Output type | NPN | | PNP | | — | |
| Applicable load | IC circuit, Relay, PLC | | | | 24 VDC relay, PLC | |
| Power supply voltage | 5, 12, 24 VDC (4.5 to 28 V) | | | | — | |
| Current consumption | 10 mA or less | | | | — | |
| Load voltage | 28 VDC or less | | — | | 24 VDC (10 to 28 VDC) | |
| Load current | 40 mA or less | | | | 2.5 to 40 mA | |
| Internal voltage drop | 0.8 V or less at 10 mA (2 V or less at 40 mA) | | | | 4 V or less | |
| Leakage current | 100 μA or less at 24 VDC | | | | 0.8 mA or less | |
| Indicator light | Red LED illuminates when turned ON. | | | | | |
| Standard | CE/UKCA marking | | | | | |

Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model | | D-M9NE(V) | D-M9PE(V) | D-M9BE(V) |
|---|-----------------------------------|----------------------------|-----------|----------------------|
| Sheath | Outside diameter [mm] | ø2.6 | | |
| Insulator | Number of cores | 3 cores (Brown/Blue/Black) | | 2 cores (Brown/Blue) |
| | Outside diameter [mm] | ø0.88 | | |
| Conductor | Effective area [mm ²] | 0.15 | | |
| | Strand diameter [mm] | ø0.05 | | |
| Min. bending radius [mm] (Reference values) | | 17 | | |

- * Refer to the **Web Catalog** for solid state auto switch common specifications.
- * Refer to the **Web Catalog** for lead wire lengths.

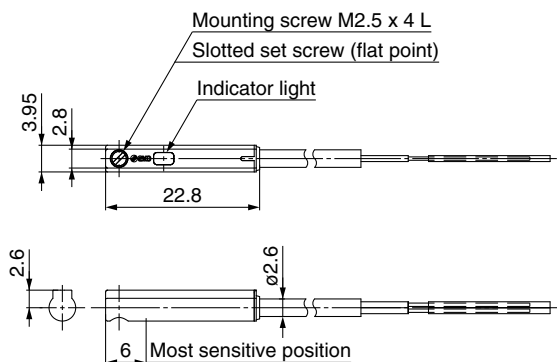
Weight

| Auto switch model | | D-M9NE(V) | D-M9PE(V) | D-M9BE(V) |
|-------------------|-------------|-----------|-----------|-----------|
| Lead wire length | 0.5 m (Nil) | 8 | 7 | 7 |
| | 1 m (M)*1 | 14 | 13 | 13 |
| | 3 m (L) | 41 | 38 | 38 |
| | 5 m (Z)*1 | 68 | 63 | 63 |

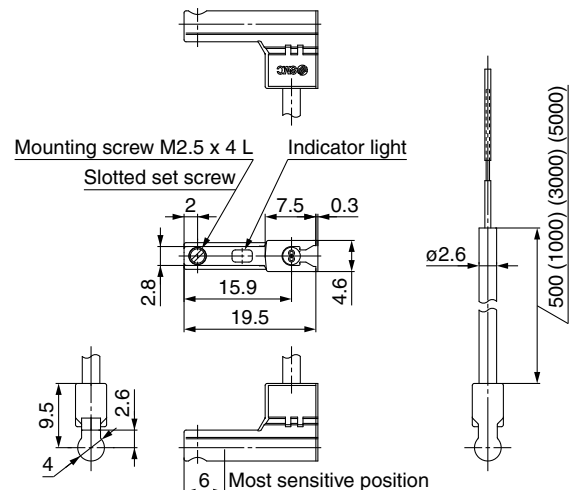
*1 The 1 m and 5 m options are produced upon receipt of order.

Dimensions

D-M9□E



D-M9□EV



2-Color Indicator Solid State Auto Switch Direct Mounting Type D-M9NW(V)/D-M9PW(V)/D-M9BW(V)



Refer to the SMC website for details on products that are compliant with international standards.

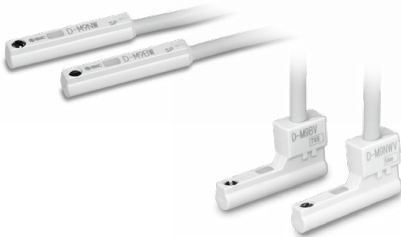
Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□W, D-M9□WV (With indicator light) | | | | | | |
|--|---|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model | D-M9NW | D-M9NWV | D-M9PW | D-M9PWV | D-M9BW | D-M9BWV |
| Electrical entry direction | In-line | Perpendicular | In-line | Perpendicular | In-line | Perpendicular |
| Wiring type | 3-wire | | | | 2-wire | |
| Output type | NPN | | PNP | | — | |
| Applicable load | IC circuit, Relay, PLC | | | | 24 VDC relay, PLC | |
| Power supply voltage | 5, 12, 24 VDC (4.5 to 28 V) | | | | — | |
| Current consumption | 10 mA or less | | | | — | |
| Load voltage | 28 VDC or less | | — | | 24 VDC (10 to 28 VDC) | |
| Load current | 40 mA or less | | | | 2.5 to 40 mA | |
| Internal voltage drop | 0.8 V or less at 10 mA (2 V or less at 40 mA) | | | | 4 V or less | |
| Leakage current | 100 μA or less at 24 VDC | | | | 0.8 mA or less | |
| Indicator light | Operating range Red LED illuminates. Proper operating range Green LED illuminates. | | | | | |
| Standard | CE/UKCA marking | | | | | |

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard spec.
- The proper operating range can be determined by the color of the light. (Red → Green ← Red)



Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model | | D-M9NW(V) | D-M9PW(V) | D-M9BW(V) |
|---|-----------------------------------|----------------------------|-----------|----------------------|
| Sheath | Outside diameter [mm] | ø2.6 | | |
| Insulator | Number of cores | 3 cores (Brown/Blue/Black) | | 2 cores (Brown/Blue) |
| | Outside diameter [mm] | ø0.88 | | |
| Conductor | Effective area [mm ²] | 0.15 | | |
| | Strand diameter [mm] | ø0.05 | | |
| Min. bending radius [mm] (Reference values) | | 17 | | |

- * Refer to the **Web Catalog** for solid state auto switch common specifications.
- * Refer to the **Web Catalog** for lead wire lengths.

Weight

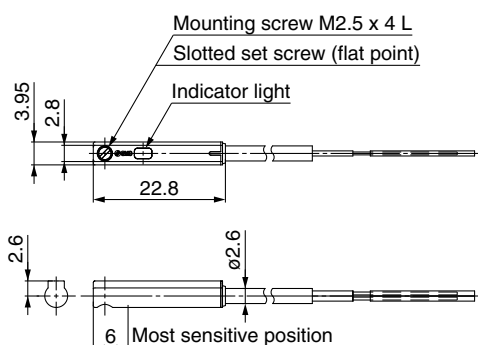
[g]

| Auto switch model | | D-M9NW(V) | D-M9PW(V) | D-M9BW(V) |
|-------------------|-------------|-----------|-----------|-----------|
| Lead wire length | 0.5 m (Nil) | 8 | 7 | 7 |
| | 1 m (M) | 14 | 13 | 13 |
| | 3 m (L) | 41 | 38 | 38 |
| | 5 m (Z) | 68 | 63 | 63 |

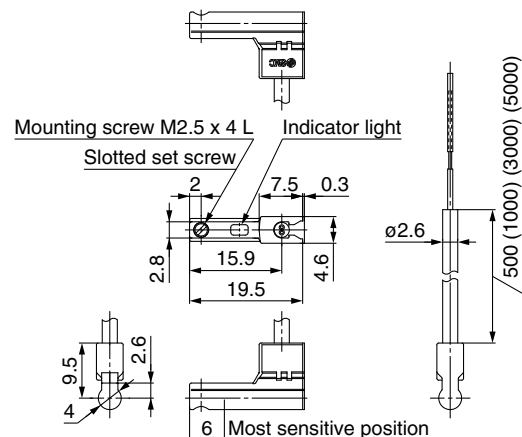
Dimensions

[mm]

D-M9□W



D-M9□WV





LET-X11 Series Specific Product Precautions 1

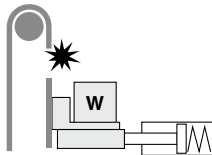
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

Design

Warning

1. When mounting it vertically, at an angle, or in other situations where there is a height difference, install safety measures from the outside. (Latches, movable bolts, fall prevention devices, etc.)

- Design the structure so that the human body does not come into direct contact with the driven object or moving parts of the actuator. Install a protective cover to prevent direct contact with the human body, or if there is a risk of contact, install a sensor or the like to ensure a safe structure such as an emergency stop before contact is made.
- Even after the actuator has stopped, do not approach the movable range until it is sufficiently safe.
- The load may fall due to a power outage or a broken belt, which may cause serious damage to the human body or the machine.
- Be sure to select a motor with brake.
- Implement safety measures externally to prevent damage from falling due to broken belt.
(Latches, movable bolts, fall prevention devices, etc.)



Caution

1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable moment. If a load in excess of the specification limits is applied to the guide, adverse effects such as the generation of play in the guide, reduced accuracy, or reduced service life of the product may occur.

2. Do not use the product in applications where excessive external force or impact force is applied to it.

The product can be damaged. The components, including the motor, are manufactured to precise tolerances. Even a slight deformation may cause a malfunction or seizure.

Selection

Warning

1. Do not increase the speed in excess of the specification limits.

Select a suitable actuator by the relationship between the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the specification limits, adverse effects such as the generation of noise, reduced accuracy, or reduced service life of the product may occur.

2. When the product repeatedly cycles with partial strokes (100 mm or less), lubrication can run out. Operate it at a full stroke at least once a day or every a thousand cycles.

3. When external force is to be applied to the table, it is necessary to add the external force to the work load as the total carried load when selecting a size.

When a cable duct or flexible moving tube is attached to the actuator, the sliding resistance of the table will increase, which may lead to the malfunction of the product.

4. Use the acceleration/deceleration within the range that does not exceed the specification limit.

This can cause malfunctions such as tooth skipping of the belt.

5. Do not operate the motor in a state where the torque exceeds 100% of the rated value without reaching the set speed.

This can cause malfunctions such as tooth skipping of the belt.

Selection

Warning

6. If the actuator is to be installed in a position other than horizontal installation, use an actuator with a lock.

If you use an actuator without a lock, there is no holding force when the power or servo is turned off, so the workpiece may drop.

Handling

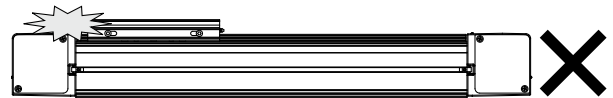
Warning

1. Do not allow the table (slider) to hit the end of stroke.

If an incorrect input instruction is given, such as using it outside the specification range or changing the driver setting/origin position to give an operation instruction outside the actual stroke, the table (slider) can conflict. Perform a trial run to confirm that the table does not hit the end of stroke.

If the table collides with the stroke end, the guide, belt, housing, etc., will be damaged and will not operate normally.

Also, take measures against drops since the workpiece will drop freely due to its own weight when it is vertical.



Caution

1. The actual speed of this actuator is affected by the work load and stroke.

Check the model selection section of the catalog.

2. Do not apply a load, impact, or resistance in addition to the transferred load during return to origin.

3. Do not dent, scratch, or cause other damage to the body or table mounting surfaces.

Doing so may cause unevenness in the mounting surface, play in the guide, or an increase in the sliding resistance.

4. Do not apply strong impact or an excessive moment while mounting the product or a workpiece.

If an external force over the allowable moment is applied, it may cause play in the guide or an increase in the sliding resistance.

5. Keep the flatness of the mounting surface within 0.1 mm/500 mm.

If a workpiece or base does not sit evenly on the body of the product, play in the guide or an increase in the sliding resistance may occur.

In the case of overhang mounting (including cantilever), use a support plate, etc., to avoid deflection of the actuator body.

6. When installing this product, fix it with more side supports and T-nuts than the number of installations.

Reducing the number of mounting units will affect performance, such as increasing the displacement of the table.

7. Do not allow a workpiece to collide with the table during the positioning operation or within the positioning range.

Particularly during the transportation



LET-X11 Series Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

Handling

⚠ Caution

8. When mounting the actuator, use bolts with adequate size and tighten them with adequate torque.

Tightening the screws with a higher torque than the maximum may cause malfunction, whilst tightening with a lower torque can cause the displacement of the mounting position or fall.

Side support mounting

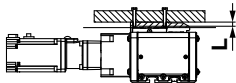


* Number of side supports: N is the combined number of left and right supports.

| Stroke | Bolt size | Max. tightening torque [N·m] | L1 [mm] | Mounting quantity | |
|------------|-----------|------------------------------|---------|-------------------|-----|
| Up to 600 | M8 x 1.25 | 12.5 ±10% | 15 | 80 | 100 |
| Up to 900 | | | | 6 | 8 |
| Up to 1200 | | | | 8 | 10 |
| Up to 2000 | | | | 10 | 12 |
| Up to 3000 | | | | 12 | 14 |

* Fix the support interval (L) of the side support at equal intervals.
* Please use MY-S50A for the side support used for installation.

Workpiece mounting



| Size | Bolt size | Max. tightening torque [N·mm] | L (Max. screw-in depth) [mm] |
|------|-----------|-------------------------------|------------------------------|
| 80 | M5 x 0.8 | 3 | 9 |
| 100 | M8 x 1.25 | 12.5 | 15 |

9. Do not operate by fixing the table and moving the actuator body.

10. Vibration may occur during operation, this could be caused by the operating conditions.

If it occurs, adjust response value of auto tuning of driver to be lower.

During the first auto tuning noise may occur, the noise will stop when the tuning is complete.

11. When the fluctuations in the load are caused during operation, malfunction, noise, or alarm generation may occur. (In the case of the AC servo motor)

The gain tuning may not be suitable for fluctuating loads. Adjust the gain properly by following the instructions in the driver manual.

12. When lifting the product, be careful not to overturn or drop it.

Doing so may damage the product.

Maintenance

⚠ Warning

Maintenance frequency

Perform maintenance according to the table below.

| Frequency | Appearance check | Internal check | Belt check |
|--|------------------|----------------|------------|
| Inspection before daily operation | ○ | — | — |
| Inspection every 6 months/1000 km/5 million cycles*1 | ○ | ○ | ○ |

*1 Select whichever comes first.

• Items for visual appearance check

1. Loose set screws, Abnormal amount of dirt, etc.
2. Check for visible damage, Check of cable joint
3. Vibration, Noise

• Items for internal check

1. Lubricant condition on moving parts
* For lubrication, use lithium grease No. 2.
2. Loose or mechanical play in fixed parts or fixing screws

• Items for belt check

Stop operation immediately and replace the belt when any of the following occur. In addition, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn, out

Canvas fiber becomes fuzzy, Rubber is coming off and the fiber has become whitish, Lines of fibers have become unclear

b. Peeling off or wearing of the side of the belt

Belt corner has become rounded and frayed threads stick out

c. Belt partially cut

Belt is partially cut, Foreign matter caught in the teeth of other parts is causing damage

d. A vertical line on belt teeth is visible

Damage which is made when the belt runs on the flange

e. Rubber back of the belt is softened and sticky

f. Cracks on the back of the belt are visible

AC Servo Motor Drivers

LECSA/LECS□-T/LECY□ Series



Pulse Input Type/Positioning Type p. 31

Incremental Type/LECSA Series



Pulse Input Type/Positioning Type p. 31

Absolute Type/LECSB-T Series



With STO sub-function

CC-Link Direct Input Type p. 31

Absolute Type/LECSA-T Series



SSCNET III/H Type p. 31

Absolute Type/LECSS-T Series



With STO sub-function

MECHATROLINK-II Type p. 40

Absolute Type/LECYM Series



With STO sub-function

MECHATROLINK-III Type p. 40

Absolute Type/LECYU Series



With STO sub-function

● Specific Product Precautions p. 47

Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

AC Servo Motor Driver

Incremental Type

LECSA Series (Pulse Input Type/Positioning Type)

Absolute Type

LECSB-T (Pulse Input Type/Positioning Type)/**LECS-C-T** (CC-Link Direct Input Type)/
LECSS-T (SSCNET III/H Type) **Series**



How to Order

For LECSA

LECSA 2 - S4

Driver type

| | |
|----------|--|
| A | Pulse input type/Positioning type (For incremental encoder) |
|----------|--|

Power supply voltage

| | |
|----------|--------------------------|
| 2 | 200 to 230 VAC, 50/60 Hz |
|----------|--------------------------|



LECSA

- * If an I/O connector is required, order the part number "LE-CSNA" separately.
- * If an I/O cable is required, order the part number "LEC-CSNA-1" separately.

Compatible motor type

| Symbol | Type | Capacity | Encoder |
|-----------|-----------------------|----------|-------------|
| S4 | AC servo motor (S4*1) | 400 W | Incremental |

*1 The symbol shows the motor type (actuator).

For LECSB-T/LECS-C-T/LECSS-T

LECSB 2 - T8

Driver type

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

Power supply voltage

| | |
|----------|--|
| 2 | 200 to 240 VAC, 50/60 Hz (For LECSB2-T/LECSS2-T) 200 to 230 VAC, 50/60 Hz (For LECS-C2-T) |
|----------|--|



LECSB-T LECS-C-T LECS-S-T

- * If an I/O connector is required, order the part number "LE-CSN□" separately.
 - * If an I/O cable is required, order the part number "LEC-CSN□-1" separately.
- (Since the electric actuator will not operate without forced stop (EM2) wiring when using the LECSB-T in any mode other than positioning mode, an I/O connector or an I/O cable is required.)

Compatible motor type

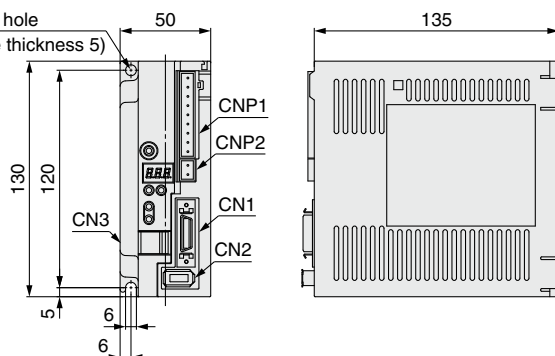
| Symbol | Type | Capacity | Encoder |
|-----------|-----------------------|----------|----------|
| T8 | AC servo motor (T8*1) | 400 W | Absolute |
| T9 | AC servo motor (T9*1) | 750 W | |

*1 The symbol shows the motor type (actuator).

Dimensions

LECSA□

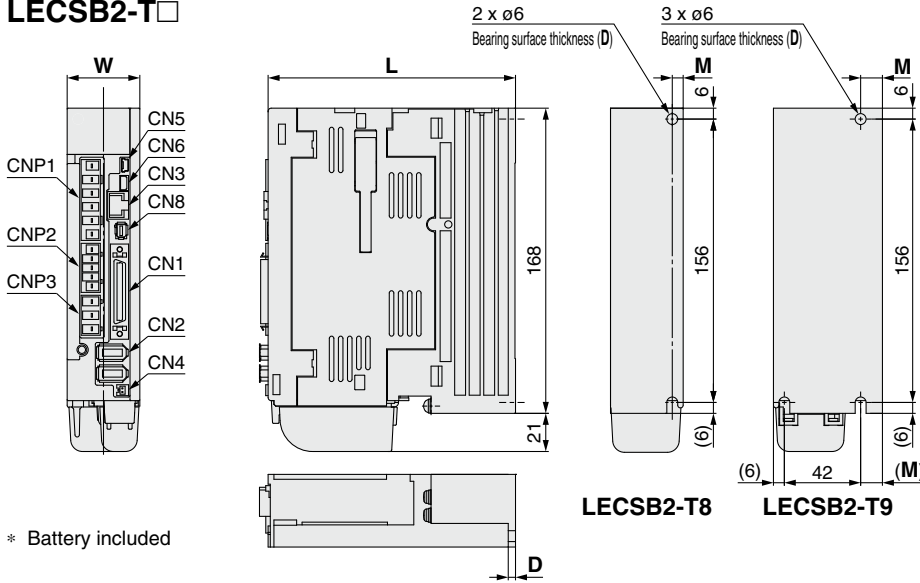
2 x ø6 Mounting hole
(Bearing surface thickness 5)



| Connector name | Description |
|----------------|--|
| CN1 | I/O signal connector |
| CN2 | Encoder connector |
| CN3 | USB communication connector |
| CNP1 | Main circuit power supply connector |
| CNP2 | Control circuit power supply connector |

Dimensions

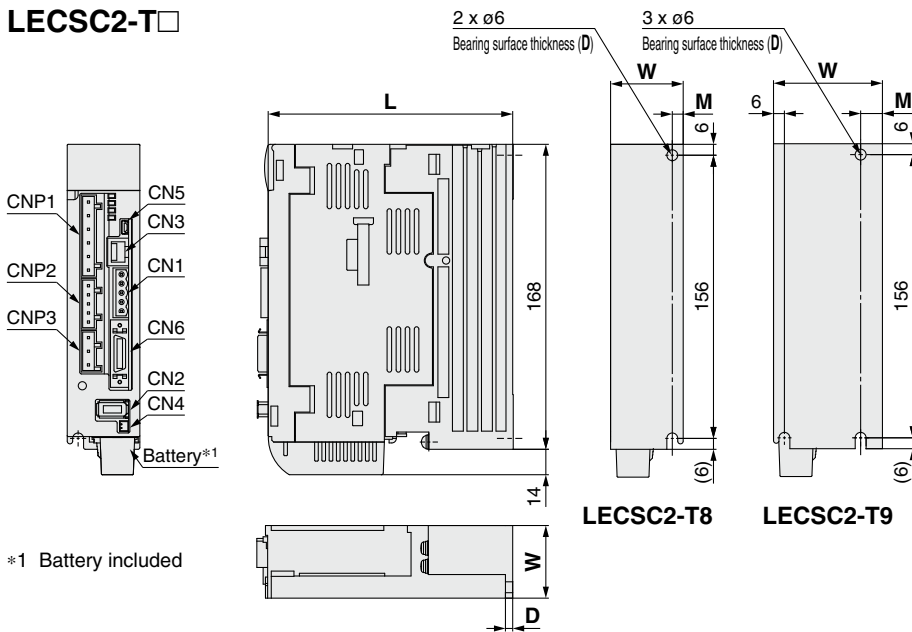
LECSB2-T□



| Connector name | Description |
|----------------|--|
| CN1 | I/O signal connector |
| CN2 | Encoder connector |
| CN3 | RS-422 communication connector |
| CN4 | Battery connector |
| CN5 | USB communication connector |
| CN6 | Analog monitor connector |
| CN8 | STO input signal connector |
| CNP1 | Main circuit power supply connector |
| CNP2 | Control circuit power supply connector |
| CNP3 | Servo motor power connector |

| Dimensions [mm] | | | | |
|------------------|----|-----|---|----|
| Model | W | L | D | M |
| LECSB2-T8 | 40 | 170 | 5 | 6 |
| LECSB2-T9 | 60 | 185 | 6 | 12 |

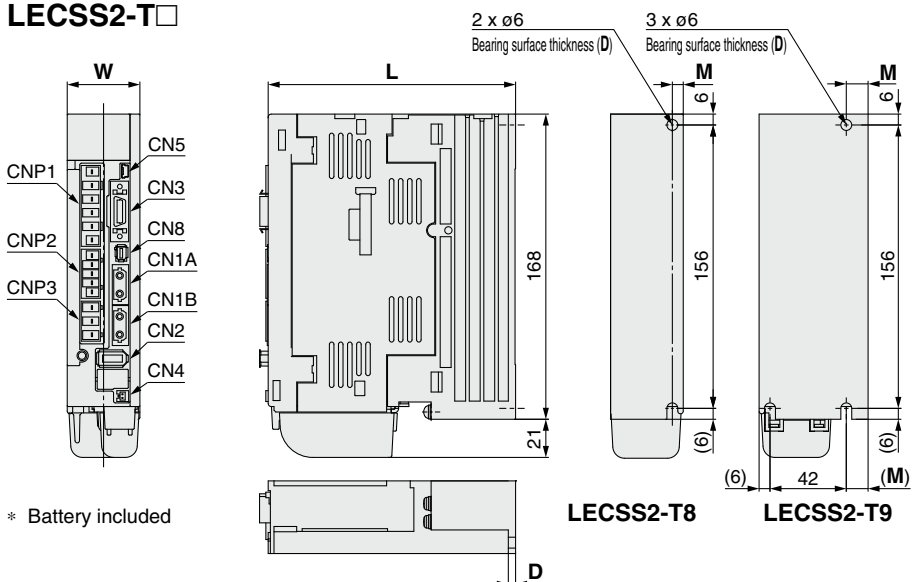
LECS2-T□



| Connector name | Description |
|----------------|--|
| 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 |

| Dimensions [mm] | | | | |
|-----------------|----|-----|---|----|
| Model | W | L | D | M |
| LECS2-T8 | 40 | 170 | 5 | 6 |
| LECS2-T9 | 60 | 185 | 6 | 12 |

LECSS2-T□



| Connector name | Description |
|----------------|--|
| CN1A | Front axis connector for SSCNET III/H |
| CN1B | Rear axis connector for SSCNET III/H |
| CN2 | Encoder connector |
| CN3 | I/O signal connector |
| CN4 | Battery connector |
| CN5 | USB communication connector |
| CN8 | STO input signal connector |
| CNP1 | Main circuit power supply connector |
| CNP2 | Control circuit power supply connector |
| CNP3 | Servo motor power connector |

| Dimensions [mm] | | | | |
|------------------|----|-----|---|----|
| Model | W | L | D | M |
| LECSS2-T8 | 40 | 170 | 5 | 6 |
| LECSS2-T9 | 60 | 185 | 6 | 12 |

LECSA/LECS□-T Series

For power supply/control signal wiring examples, refer to the "Operation Manual" on the SMC website.



Specifications

LECSA Series

| Model | | LECSA2-S4 |
|----------------------------------|-----------------------------------|---|
| Compatible motor capacity [W] | | 400 |
| Compatible encoder | | Incremental 17-bit encoder (Resolution: 131072 p/rev) |
| Main power supply | Power voltage [V] | Single phase 200 to 230 VAC (50/60 Hz) |
| | Allowable voltage fluctuation [V] | Single phase 170 to 253 VAC |
| | Rated current [A] | 4.5 |
| Control power supply | Control power supply voltage [V] | 24 VDC |
| | Allowable voltage fluctuation [V] | 21.6 to 26.4 VDC |
| | Rated current [A] | 0.5 |
| Parallel input | | 6 inputs |
| Parallel output | | 4 outputs |
| Max. input pulse frequency [pps] | | 1 M (for differential receiver), 200 k (for open collector) |
| Function | In-position range setting [pulse] | 0 to ±65535 (Command pulse unit) |
| | Error excessive | ±3 rotations |
| | Torque limit | Parameter setting |
| | Communication | USB communication |
| | Point table | Up to 7 points |
| Operating temperature range [°C] | | 0 to 55 (No freezing) |
| Operating humidity range [%RH] | | 90 or less (No condensation) |
| Storage temperature range [°C] | | -20 to 65 (No freezing) |
| Storage humidity range [%RH] | | 90 or less (No condensation) |
| Insulation resistance [MΩ] | | Between the housing and SG: 10 (500 VDC) |
| Weight [g] | | 700 |

LECSB-T Series

| Model | | LECSB2-T8 | LECSB2-T9 |
|----------------------------------|-----------------------------------|---|-----------|
| Compatible motor capacity [W] | | 400 | 750 |
| Compatible encoder | | Absolute 22-bit encoder (Resolution: 4194304 p/rev) | |
| Main power supply | Power voltage [V] | Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz) | |
| | Rated current [A] | 2.6 | 3.8 |
| Control power supply | Control power supply voltage [V] | Single phase 200 to 240 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Single phase 170 to 264 VAC | |
| | Rated current [A] | 0.2 | |
| Parallel input | | 10 inputs | |
| Parallel output | | 6 outputs | |
| Max. input pulse frequency [pps] | | 4 M (for differential receiver), 200 k (for open collector) | |
| Function | In-position range setting [pulse] | 0 to ±65535 (Command pulse unit) | |
| | Error excessive | ±3 rotations | |
| | Torque limit | Parameter setting or external analog input setting (0 to 10 VDC) | |
| | Communication | USB communication, RS422 communication*1 | |
| | Point table | Up to 255 points | |
| Pushing operation | | Point table no. input method, Up to 127 points | |
| Operating temperature range [°C] | | 0 to 55 (No freezing) | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | |
| Storage temperature range [°C] | | -20 to 65 (No freezing) | |
| Storage humidity range [%RH] | | 90 or less (No condensation) | |
| Insulation resistance [MΩ] | | Between the housing and SG: 10 (500 VDC) | |
| Safety function | | STO (IEC/EN 61800-5-2) | |
| Safety standards*2 | | EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, EN 61800-5-2 | |
| Weight [g] | | 1000 | 1400 |

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

*2 The safety level depends on the set value of the driver parameter [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. Refer to the LECSB-T operation manual for details.

AC Servo Motor Driver **LECSA/LECS□-T Series**

For power supply/control signal wiring examples, refer to the "Operation Manual" on the SMC website.



Specifications

LECS-C-T Series

| Model | | LECS-C2-T8 | LECS-C2-T9 | |
|---|---|--|--|--|
| Compatible motor capacity [W] | | 400 | 750 | |
| Compatible encoder | | Absolute 18-bit encoder (Resolution: 262144 p/rev) | | |
| Main power supply | Power voltage [V] | Three phase 200 to 230 VAC (50/60 Hz), Single phase 200 to 230 VAC (50/60 Hz) | | |
| | Allowable voltage fluctuation [V] | Three phase 170 to 253 VAC, Single phase 170 to 253 VAC | | |
| | Rated current [A] | 2.6 | 3.8 | |
| Control power supply | Control power supply voltage [V] | Single phase 200 to 230 VAC (50/60 Hz) | | |
| | Allowable voltage fluctuation [V] | Single phase 170 to 253 VAC | | |
| | Rated current [A] | 0.2 | | |
| Communication specifications | Applicable Fieldbus protocol (Version) | CC-Link communication (Ver. 1.10) | | |
| | Connection cable | CC-Link Ver. 1.10 compliant cable (Shielded 3-core twisted pair cable)*1 | | |
| | Remote station number | 1 to 64 | | |
| | Cable length | Communication speed [bps]/ Maximum overall cable length [m] | 16 k/1200, 625 k/900, 2.5 M/400, 5 M/160, 10 M/100 | |
| | | Cable length between stations [m] | 0.2 or more | |
| | I/O occupation area (Inputs/Outputs) | 1 station occupied (Remote I/O 32 points/32 points)/(Remote register 4 words/4 words) 2 stations occupied (Remote I/O 64 points/64 points)/(Remote register 8 words/8 words) | | |
| Number of connectable drivers | 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. | | | |
| Command method | Remote register input | Available with CC-Link communication (2 stations occupied) | | |
| | Point table No. input | Available with CC-Link communication, RS422 communication CC-Link communication (1 station occupied): 31 points, CC-Link communication (2 stations occupied): 255 points RS422 communication: 255 points | | |
| | Indexer positioning input | Available with CC-Link communication CC-Link communication (1 station occupied): 31 points, CC-Link communication (2 stations occupied): 255 points | | |
| Communication function | | USB communication, RS-422 communication*2 | | |
| Operating temperature range [°C] | | 0 to 55 (No freezing) | | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | | |
| Storage temperature range [°C] | | -20 to 65 (No freezing) | | |
| Storage humidity range [%RH] | | 90 or less (No condensation) | | |
| Insulation resistance [MΩ] | | Between the housing and SG: 10 (500 VDC) | | |
| Weight [g] | | 1000 | 1400 | |

*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 overall cable length and the cable length between stations.

*2 USB communication and RS422 communication cannot be performed at the same time.

LECS-S-T Series

| Model | | LECS-S2-T8 | LECS-S2-T9 |
|---|--|--|------------|
| Compatible motor capacity [W] | | 400 | 750 |
| Compatible encoder | | Absolute 22-bit encoder (Resolution: 4194304 p/rev) | |
| Main power supply | Power voltage [V] | Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz) | |
| | Rated current [A] | 2.6 | 3.8 |
| Control power supply | Control power supply voltage [V] | Single phase 200 to 240 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Single phase 170 to 264 VAC | |
| | Rated current [A] | 0.2 | |
| Applicable Fieldbus protocol | | SSCNET III/H (High-speed optical communication) | |
| Communication function | | USB communication | |
| Operating temperature range [°C] | | 0 to 55 (No freezing) | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | |
| Storage temperature range [°C] | | -20 to 65 (No freezing) | |
| Storage humidity range [%RH] | | 90 or less (No condensation) | |
| Insulation resistance [MΩ] | | Between the housing and SG: 10 (500 VDC) | |
| Safety function | | STO (IEC/EN 61800-5-2) | |
| Safety standards*1 | | EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL2, EN 61800-5-2 | |
| Weight [g] | | 1000 | 1400 |

*1 Refer to the LECS-S-T operation manual for details.

Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

LECSA/LECS□-T Series

Options

Motor cable, Lock cable, Encoder cable (LECSA, LECS□-T common)

LE - CSM - S 5 A

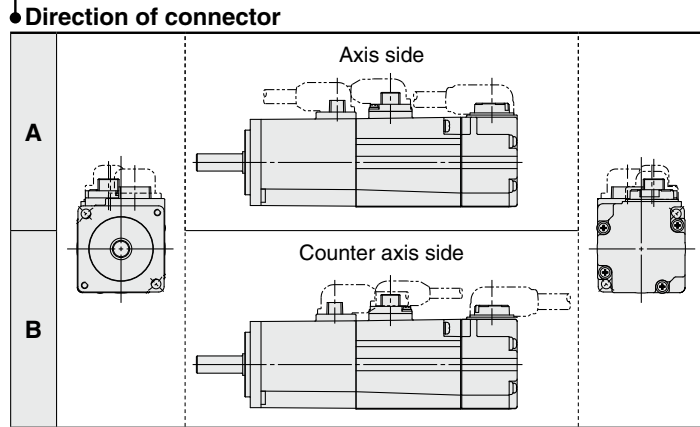
Motor type
S AC servo motor

Cable description
M Motor cable
B Lock cable
E Encoder cable

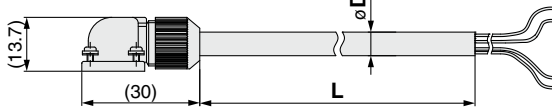
Cable type
S Standard cable
R Robotic cable

Cable length (L) [m]

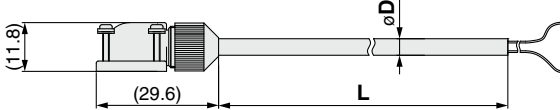
| | |
|----------|----|
| 2 | 2 |
| 5 | 5 |
| A | 10 |



LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable*1



LE-CSE-□□: Encoder cable



*1 If using an actuator with a lock, a lock cable is required.

| Product no. | øD |
|-------------------|-----|
| LE-CSM-S□A | 6.2 |
| LE-CSM-S□B | 6.2 |
| LE-CSM-R□A | 5.7 |
| LE-CSM-R□B | 5.7 |

| Product no. | øD |
|-------------------|-----|
| LE-CSB-S□A | 4.7 |
| LE-CSB-S□B | 4.7 |
| LE-CSB-R□A | 4.5 |
| LE-CSB-R□B | 4.5 |

Weight

| Product no. | Length [m] | Weight [g] |
|-------------------|------------|------------|
| LE-CSM-S2□ | 2 | 180 |
| LE-CSM-S5□ | 5 | 400 |
| LE-CSM-SA□ | 10 | 800 |
| LE-CSM-R2□ | 2 | 180 |
| LE-CSM-R5□ | 5 | 400 |
| LE-CSM-RA□ | 10 | 800 |

Weight

| Product no. | Length [m] | Weight [g] |
|-------------------|------------|------------|
| LE-CSB-S2□ | 2 | 80 |
| LE-CSB-S5□ | 5 | 200 |
| LE-CSB-SA□ | 10 | 400 |
| LE-CSB-R2□ | 2 | 80 |
| LE-CSB-R5□ | 5 | 200 |
| LE-CSB-RA□ | 10 | 400 |

Weight

| Product no. | Length [m] | Weight [g] |
|-------------------|------------|------------|
| LE-CSE-S2□ | 2 | 220 |
| LE-CSE-S5□ | 5 | 600 |
| LE-CSE-SA□ | 10 | 1200 |
| LE-CSE-R2□ | 2 | 220 |
| LE-CSE-R5□ | 5 | 600 |
| LE-CSE-RA□ | 10 | 1200 |

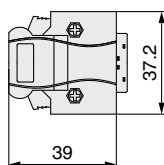
I/O connector (Without cable, Connector only)

LE - CSN A

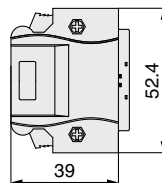
Driver type

| | |
|----------|-------------------------|
| A | LECSA□, LECS2-T□ |
| B | LECSB2-T□ |
| S | LECSS2-T□ |

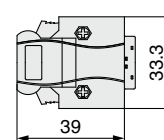
LE-CSNA



LE-CSNB



LE-CSNS



Weight

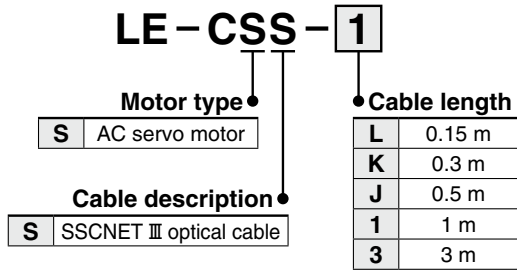
| Product no. | Weight [g] |
|----------------|------------|
| LE-CSNA | 25 |
| LE-CSNB | 30 |
| LE-CSNS | 16 |

* LE-CSNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
 LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
 LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent

* Applicable conductor size: AWG24 to 30
 * If using the LECSB-T in any mode other than positioning mode, forced stop (EM2) wiring is required in all cases. (The electric actuator will not operate without the wiring.)
 Prepare an I/O connector or an I/O cable in advance.

Options

SSCNET III optical cable (LECSSL2-T□)

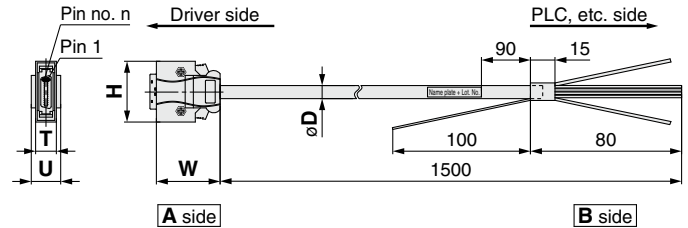
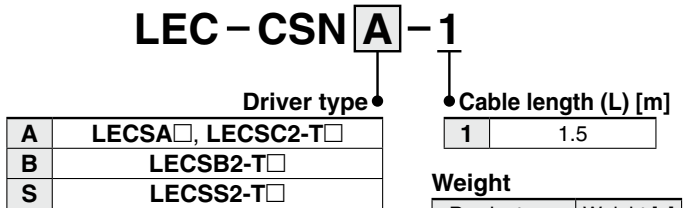


* LE-CSS-□ is MR-J3BUS□M manufactured by Mitsubishi Electric Corporation.

Weight

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LE-CSS-L | 0.15 | 100 |
| LE-CSS-K | 0.3 | 100 |
| LE-CSS-J | 0.5 | 200 |
| LE-CSS-1 | 1 | 200 |
| LE-CSS-3 | 3 | 200 |

I/O cable



- * LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- * LEC-CSNB-1: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- * LEC-CSNS-1: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- * Conductor size: AWG24
- * If using the LECSB-T in any mode other than positioning mode, forced stop (EM2) wiring is required in all cases. (The electric actuator will not operate without the wiring.)
- * Prepare an I/O connector or an I/O cable in advance.

Cable O.D.

| Product no. | øD |
|-------------|------|
| LEC-CSNA-1 | 11.1 |
| LEC-CSNB-1 | 13.8 |
| LEC-CSNS-1 | 9.1 |

Dimensions/Pin Nos.

| Product no. | W | H | T | U | Pin no. n |
|-------------|----|------|------|----|-----------|
| LEC-CSNA-1 | 39 | 37.2 | 12.7 | 14 | 14 |
| LEC-CSNB-1 | | 52.4 | | 18 | 26 |
| LEC-CSNS-1 | | 33.3 | | 14 | 21 |

Wiring

LEC-CSNA-1: Pin nos. 1 to 26

LEC-CSNB-1: Pin nos. 1 to 50

LEC-CSNS-1: Pin nos. 1 to 20

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark | Dot color |
|-------------------|------------------|------------------|----------|-----------|
| 1 | 1 | Orange | ■ | Red |
| 2 | 1 | Orange | ■ | Black |
| 3 | 2 | Light gray | ■ | Red |
| 4 | 2 | Light gray | ■ | Black |
| 5 | 3 | White | ■ | Red |
| 6 | 3 | White | ■ | Black |
| 7 | 4 | Yellow | ■ | Red |
| 8 | 4 | Yellow | ■ | Black |
| 9 | 5 | Pink | ■ | Red |
| 10 | 5 | Pink | ■ | Black |
| 11 | 6 | Orange | ■ ■ | Red |
| 12 | 6 | Orange | ■ ■ | Black |
| 13 | 7 | Light gray | ■ ■ | Red |
| 14 | 7 | Light gray | ■ ■ | Black |
| 15 | 8 | White | ■ ■ | Red |
| 16 | 8 | White | ■ ■ | Black |
| 17 | 9 | Yellow | ■ ■ | Red |
| 18 | 9 | Yellow | ■ ■ | Black |

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark | Dot color |
|-------------------|------------------|------------------|----------|-----------|
| 19 | 10 | Pink | ■ ■ | Red |
| 20 | 10 | Pink | ■ ■ | Black |
| 21 | 11 | Orange | ■ ■ ■ | Red |
| 22 | 11 | Orange | ■ ■ ■ | Black |
| 23 | 12 | Light gray | ■ ■ ■ | Red |
| 24 | 12 | Light gray | ■ ■ ■ | Black |
| 25 | 13 | White | ■ ■ ■ | Red |
| 26 | 13 | White | ■ ■ ■ | Black |
| 27 | 14 | Yellow | ■ ■ ■ | Red |
| 28 | 14 | Yellow | ■ ■ ■ | Black |
| 29 | 15 | Pink | ■ ■ ■ | Red |
| 30 | 15 | Pink | ■ ■ ■ | Black |
| 31 | 16 | Orange | ■ ■ ■ ■ | Red |
| 32 | 16 | Orange | ■ ■ ■ ■ | Black |
| 33 | 17 | Light gray | ■ ■ ■ ■ | Red |
| 34 | 17 | Light gray | ■ ■ ■ ■ | Black |

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark | Dot color |
|-------------------|------------------|------------------|------------------------|-----------|
| 35 | 18 | White | ■ ■ ■ ■ | Red |
| 36 | 18 | White | ■ ■ ■ ■ | Black |
| 37 | 19 | Yellow | ■ ■ ■ ■ | Red |
| 38 | 19 | Yellow | ■ ■ ■ ■ | Black |
| 39 | 20 | Pink | ■ ■ ■ ■ | Red |
| 40 | 20 | Pink | ■ ■ ■ ■ | Black |
| 41 | 21 | Orange | ■ ■ ■ ■ ■ (Continuous) | Red |
| 42 | 21 | Orange | ■ ■ ■ ■ ■ (Continuous) | Black |
| 43 | 22 | Light gray | ■ ■ ■ ■ ■ (Continuous) | Red |
| 44 | 22 | Light gray | ■ ■ ■ ■ ■ (Continuous) | Black |
| 45 | 23 | White | ■ ■ ■ ■ ■ (Continuous) | Red |
| 46 | 23 | White | ■ ■ ■ ■ ■ (Continuous) | Black |
| 47 | 24 | Yellow | ■ ■ ■ ■ ■ (Continuous) | Red |
| 48 | 24 | Yellow | ■ ■ ■ ■ ■ (Continuous) | Black |
| 49 | 25 | Pink | ■ ■ ■ ■ ■ (Continuous) | Red |
| 50 | 25 | Pink | ■ ■ ■ ■ ■ (Continuous) | Black |

Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

LECSA/LECS□-T Series

Options

Regeneration option (LECS□ common)

LEC-MR-RB-12

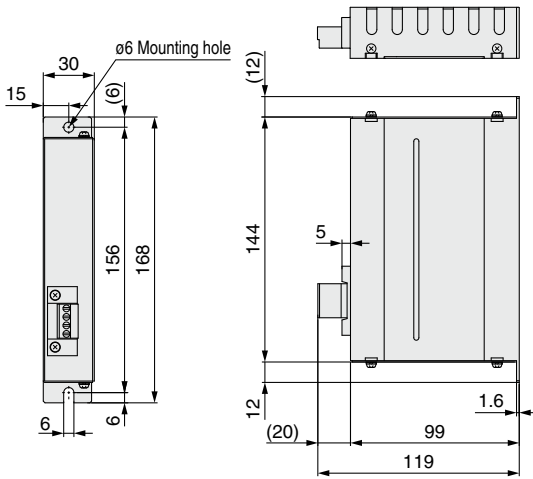
Regeneration option type

| | |
|------------|------------------------------------|
| 032 | Allowable regenerative power 30 W |
| 12 | Allowable regenerative power 100 W |
| 32 | Allowable regenerative power 300 W |

* Confirm regeneration option to be used in "Model Selection."

* The regeneration option "LEC-MR-RB-32" cannot be used with the LECSA.

LEC-MR-RB-032

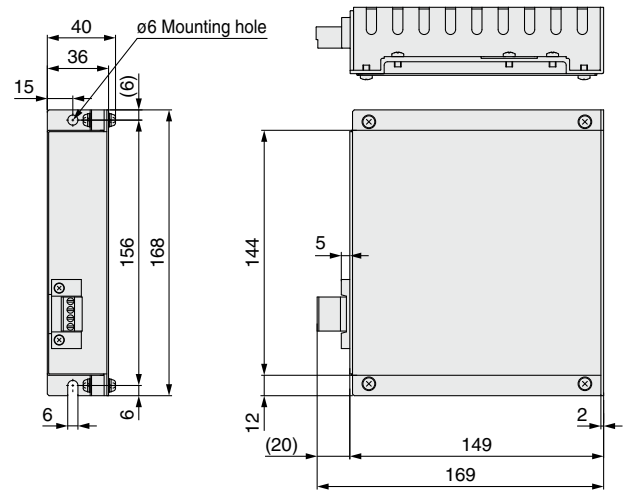


Weight

| Product no. | Weight [kg] |
|----------------------|-------------|
| LEC-MR-RB-032 | 0.5 |

* MR-RB032 manufactured by Mitsubishi Electric Corporation

LEC-MR-RB-12

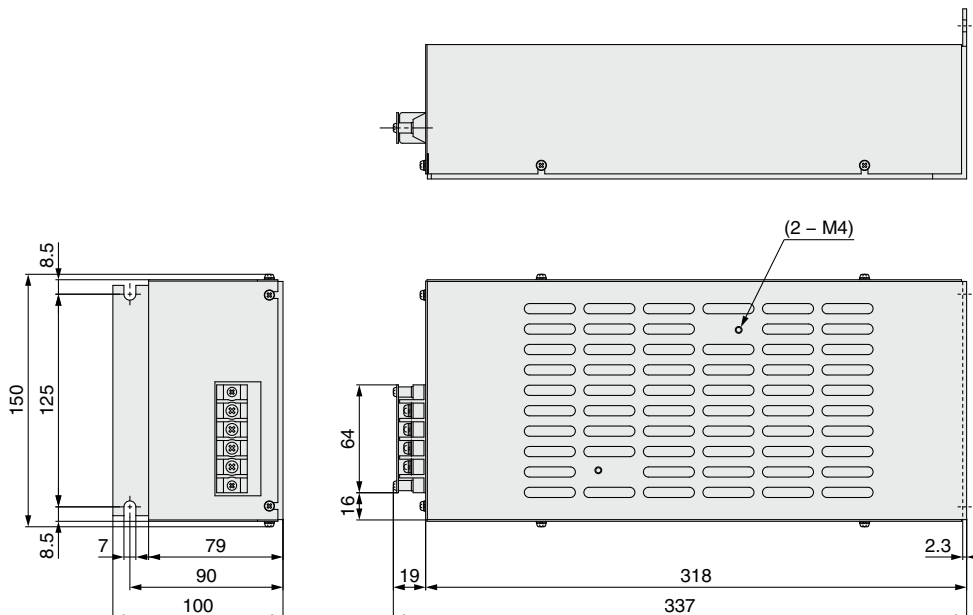


Weight

| Product no. | Weight [kg] |
|---------------------|-------------|
| LEC-MR-RB-12 | 1.1 |

* MR-RB12 manufactured by Mitsubishi Electric Corporation

LEC-MR-RB-32

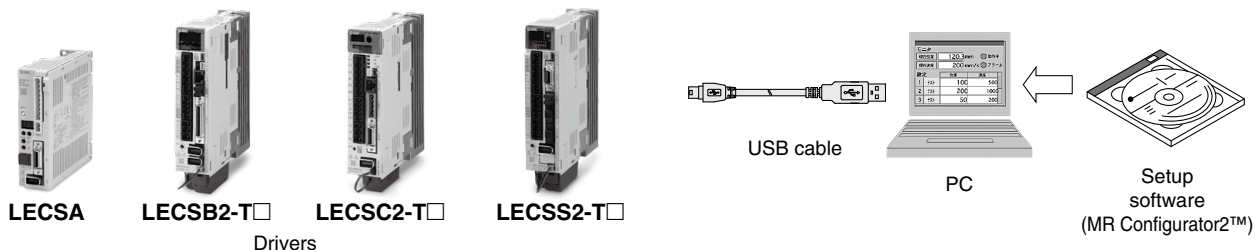


Weight

| Product no. | Weight [kg] |
|---------------------|-------------|
| LEC-MR-RB-32 | 2.9 |

* MR-RB32 manufactured by Mitsubishi Electric Corporation

Options



Setup software (MR Configurator2™) (LECSA, LECS□-T common)

LEC-MRC2□

• Display language

| | |
|------------|------------------|
| Nil | Japanese version |
| E | English version |
| C | Chinese version |

* SW1DNC-MRC2-□ manufactured by Mitsubishi Electric Corporation
 Refer to Mitsubishi Electric Corporation's website for operating environment and version upgrade information.
 MR Configurator2™ is a registered trademark or trademark of Mitsubishi Electric Corporation.

Adjustment, waveform display, diagnostics, parameter reading/writing, and test operations can be performed on a PC.

Hardware Requirements*1 *3

| Equipment | Description | |
|-------------------------|--|--|
| OS | Microsoft® Windows® 11 Education Operating System Microsoft® Windows® 11 Enterprise Operating System Microsoft® Windows® 11 Pro Operating System Microsoft® Windows® 11 Home Operating System Microsoft® Windows® 10 Education Microsoft® Windows® 10 Enterprise Microsoft® Windows® 10 Pro Microsoft® Windows® 10 Home Microsoft® Windows® 10 IoT Enterprise 2016 LTSB*2 Microsoft® Windows® 8.1 Enterprise Microsoft® Windows® 8.1 Pro Microsoft® Windows® 8.1 Microsoft® Windows® 8 Enterprise Microsoft® Windows® 8 Pro Microsoft® Windows® 8 Microsoft® Windows® 7 Enterprise Microsoft® Windows® 7 Ultimate Microsoft® Windows® 7 Professional Microsoft® Windows® 7 Home Premium Microsoft® Windows® 7 Starter | |
| CPU (Recommended) | Windows® 11 | 2-core or higher 64-bit compatible processor or System on a Chip (SoC) |
| | Other than Windows® 11 | Desktop PC: Intel® Celeron® processor 2.8 GHz or higher Laptop: Intel® Pentium® M processor 1.7 GHz or higher |
| Memory (Recommended) | Windows® 11 | 4 GB or more (64-bit OS) |
| | Other than Windows® 11 | 1 GB or more (32-bit OS) 2 GB or more (64-bit OS) |
| Available HD space | 1.5 GB or more | |
| Display | Resolution: 1024 x 768 or more, Must be capable of high color (16-bit) display Connectable with the PCs listed above | |
| USB cable | LEC-MR-J3USB | |
| Ethernet cable | Cable type: Category 5e or higher, (Double shielded/STP) Straight cable Standards: IEEE 802.3 (1000BASE-T) or ANSI/TIA/EIA-568-B (Category 5e) Connector: Shielded RJ-45 | |

*1 On some PCs, this software may not run properly.

*2 Only the 64-bit edition is supported.

*3 Surrogate pair characters and environment-dependent characters cannot be used.

Setup Software Compatible Drivers

| Compatible driver | Setup software | |
|-------------------|------------------|-------------------|
| | MR Configurator™ | MR Configurator2™ |
| | LEC-MR-SETUP221□ | LEC-MRC2□ |
| LECSA | ○ | ○ |
| LECSB2-T□ | — | ○ |
| LECSC2-T□ | — | ○ |
| LECSS2-T□ | — | ○ |

LECSA/LECS□-T Series

Options

USB cable (3 m)
(LECSA, LECSB-T, LECSA-T, LECSA-T common)

LEC – MR – J3USB

* MR-J3USBCBL3M manufactured by Mitsubishi Electric Corporation
Weight: 140 g

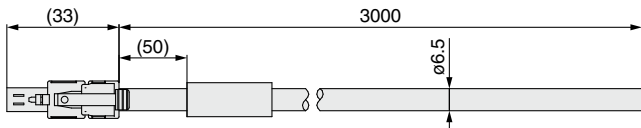
Cable for connecting the PC and driver when using the setup software (MR Configurator2™)
Do not use any cable other than this cable.

STO cable (3 m)
(Only for LECSB2-T□ and LECSA2-T□)

LEC – MR – D05UDL3M

* MR-D05UDL3M-B manufactured by Mitsubishi Electric Corporation

Cable for connecting the driver and device, when using the safety function
Do not use any cable other than this cable.



Weight: 500 g

Battery

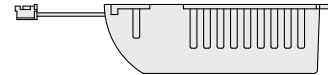
Replacement batteries must be purchased from Mitsubishi Electric Corporation.

Part no.: MR-J3BAT

manufactured by Mitsubishi Electric Corporation

Battery for replacement

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



Weight: 30 g

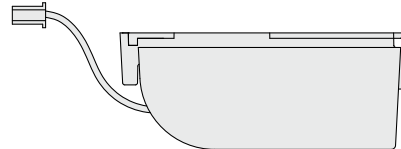
* The MR-J3BAT is a single battery that uses a lithium metal battery ER6V.
When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is to transport such products, it is necessary for them to confirm the latest regulations, or the laws and regulations of the country of transport, on their own in order to apply the proper measures.

Part no.: MR-BAT6V1SET

manufactured by Mitsubishi Electric Corporation

Battery for replacement

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



Weight: 60 g

* The MR-BAT6V1SET is an assembled battery that uses a lithium metal battery 2CR17335A.
When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is to transport such products, it is necessary for them to confirm the latest regulations, or the laws and regulations of the country of transport, on their own in order to apply the proper measures.

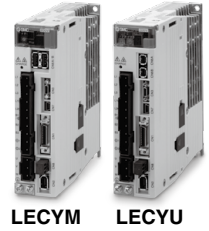
Battery Types and Compatible Drivers

| Compatible driver | Battery type | |
|-------------------|--------------|--------------|
| | MR-J3BAT | MR-BAT6V1SET |
| LECSB□-T□ | — | ○ |
| LECSA□-T□ | ○ | — |
| LECSA□-T□ | — | ○ |

AC Servo Motor Driver Absolute Type

LECYM/LECYU Series

(MECHATROLINK-II Type) (MECHATROLINK-III Type)



* For details, refer to page 49.

How to Order

Driver

LECY **M** 2 - V8

Driver type

| | |
|----------|---|
| M | MECHATROLINK-II type (For absolute encoder) |
| U | MECHATROLINK-III type (For absolute encoder) |

Power supply voltage

| | |
|----------|--------------------------|
| 2 | 200 to 230 VAC, 50/60 Hz |
|----------|--------------------------|

Compatible motor type

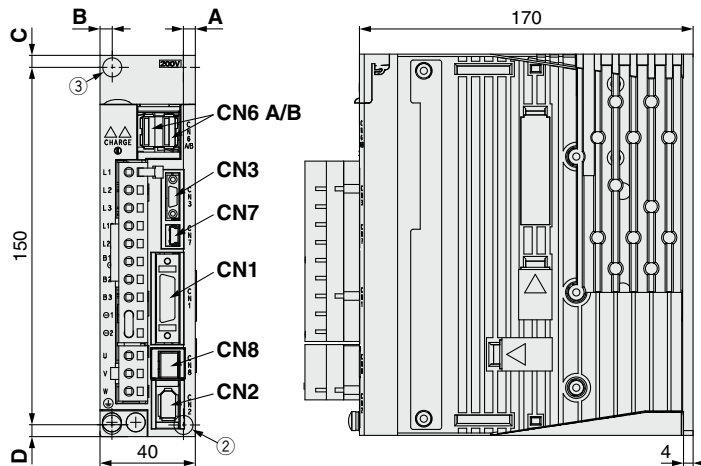
| Symbol | Type | Capacity | Encoder |
|-----------|-----------------------|----------|----------|
| V8 | AC servo motor (V8*1) | 400 W | Absolute |

*1 The symbol shows the motor type (actuator).

- * If an I/O connector (CN1) is required, order the part number "LE-CYNA" separately.
- * If an I/O cable (CN1) is required, order the part number "LEC-CSNA-1" separately.

Dimensions

MECHATROLINK-II type
LECYM2-V8



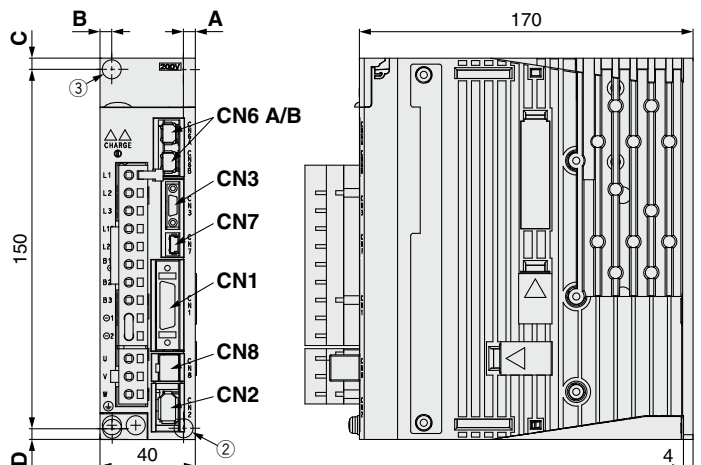
| Connector name | Description |
|----------------|---|
| CN1 | I/O signal connector |
| CN2 | Encoder connector |
| CN3*1 | Digital operator connector |
| CN6A | MECHATROLINK-II communication connector |
| CN6B | MECHATROLINK-II communication connector |
| CN7 | PC connector |
| CN8 | Safety connector |

*1 Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

| Motor capacity | Hole position | Mounting dimensions | | | | Mounting hole |
|-------------------|---------------|---------------------|---|---|---|---------------|
| | | A | B | C | D | |
| V8 (400 W) | ②③ | 5 | 5 | 5 | 5 | ø5 |

* The mounting hole position varies depending on the motor capacity.

MECHATROLINK-III type
LECYU2-V8



| Connector name | Description |
|----------------|--|
| CN1 | I/O signal connector |
| CN2 | Encoder connector |
| CN3*1 | Digital operator connector |
| CN6A | MECHATROLINK-III communication connector |
| CN6B | MECHATROLINK-III communication connector |
| CN7 | PC connector |
| CN8 | Safety connector |

*1 Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

| Motor capacity | Hole position | Mounting dimensions | | | | Mounting hole |
|-------------------|---------------|---------------------|---|---|---|---------------|
| | | A | B | C | D | |
| V8 (400 W) | ②③ | 5 | 5 | 5 | 5 | ø5 |

* The mounting hole position varies depending on the motor capacity.

For power supply/control signal wiring examples, refer to the "Operation Manual" on the SMC website.



Specifications

MECHATROLINK-II Type

| Model | | LECYM2-V8 | |
|---|---------------------------------------|--|--|
| Compatible motor capacity [W] | | 400 | |
| Compatible encoder | | Absolute 20-bit encoder (Resolution: 1048576 p/rev) | |
| Main circuit power supply | Power voltage [V] | Three phase 200 to 230 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Three phase 170 to 253 VAC | |
| Control power supply | Power voltage [V] | Single phase 200 to 230 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Single phase 170 to 253 VAC | |
| Power supply capacity (at rated output) [A] | | 2.8 | |
| Input circuit | | NPN (Sink circuit)/PNP (Source circuit) | |
| Parallel input (7 inputs) | Number of optional allocations | 7 inputs | [Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed. |
| | | | Number of fixed allocations |
| Parallel output (4 outputs) | Number of optional allocations | 3 outputs | [Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed. |
| | | | |
| MECHATROLINK communication | Communication protocol | MECHATROLINK-II | |
| | Station address | 41H to 5FH | |
| | Transmission speed | 10 Mbps | |
| | Transmission cycle | 250 μs, 0.5 ms to 4 ms (Multiples of 0.5 ms) | |
| | Number of transmission bytes | 17 bytes, 32 bytes | |
| | Max. number of stations | 30 | |
| | Cable length | Overall cable length: 50 m or less, Cable length between the stations: 0.5 m or more | |
| Command method | Control method | Position, speed, or torque control with MECHATROLINK-II communication | |
| | Command input | MECHATROLINK-II command (Motion, data setting, monitoring, or adjustment) | |
| Function | Gain adjustment | Tuning-less/Advanced auto tuning/One-parameter tuning | |
| | Communication setting | USB communication, RS-422 communication | |
| | Torque limit | Internal torque limit, external torque limit, and torque limit by analog command | |
| | Encoder output | Phase A, B, Z: Line driver output | |
| | Emergency stop | CN8 Safety function | |
| | Overtravel | Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT | |
| Alarm | Alarm signal, MECHATROLINK-II command | | |
| Operating temperature range [°C] | | 0 to 55 (No freezing) | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | |
| Storage temperature range [°C] | | -20 to 85 (No freezing) | |
| Storage humidity range [%RH] | | 90 or less (No condensation) | |
| Insulation resistance [MΩ] | | 10 MΩ (500 VDC) | |
| Safety function | | STO (IEC 61800-5-2) | |
| Safety standards*1 | | EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL2, IEC 62061 SIL CL2, IEC 61800-5-2 | |
| Weight [g] | | 1000 | |

*1 Refer to the LECYM operation manual for details.

For power supply/control signal wiring examples, refer to the "Operation Manual" on the SMC website.



Specifications

MECHATROLINK-III Type

| Model | | LECYU2-V8 | |
|---|--|---|---|
| Compatible motor capacity [W] | | 400 | |
| Compatible encoder | | Absolute 20-bit encoder (Resolution: 1048576 p/rev) | |
| Main circuit power supply | Power voltage [V] | Three phase 200 to 230 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Three phase 170 to 253 VAC | |
| Control power supply | Power voltage [V] | Single phase 200 to 230 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation [V] | Single phase 170 to 253 VAC | |
| Power supply capacity (at rated output) [A] | | 2.8 | |
| Input circuit | | NPN (Sink circuit)/PNP (Source circuit) | |
| Parallel input (7 inputs) | Number of optional allocations | 7 inputs | [Initial allocation] <ul style="list-style-type: none"> · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) |
| | | | [Can be allocated by setting the parameters] <ul style="list-style-type: none"> · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) <p>Signal allocations can be performed, and positive and negative logic can be changed.</p> |
| Parallel output (4 outputs) | Number of fixed allocations | 1 output | · Servo alarm (ALM) |
| | Number of optional allocations | 3 outputs | [Initial allocation] <ul style="list-style-type: none"> · Lock (/BK) [Can be allocated by setting the parameters] <ul style="list-style-type: none"> · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) <p>Signal allocations can be performed, and positive and negative logic can be changed.</p> |
| MECHATROLINK communication | Communication protocol | MECHATROLINK-III | |
| | Station address | 03H to EFH | |
| | Transmission speed | 100 Mbps | |
| | Transmission cycle | 125 μs, 250 μs, 500 μs, 750 μs, 1 ms to 4 ms (Multiples of 0.5 ms) | |
| | Number of transmission bytes | 16 bytes, 32 bytes, 48 bytes | |
| | Max. number of stations | 62 | |
| | Cable length | Cable length between the stations: 0.5 m or more, 75 m or less | |
| Command method | Control method | Position, speed, or torque control with MECHATROLINK-III communication | |
| | Command input | MECHATROLINK-III command (Motion, data setting, monitoring, or adjustment) | |
| Function | Gain adjustment | Tuning-less/Advanced auto tuning/One-parameter tuning | |
| | Communication setting | USB communication, RS-422 communication | |
| | Torque limit | Internal torque limit, external torque limit, and torque limit by analog command | |
| | Encoder output | Phase A, B, Z: Line driver output | |
| | Emergency stop | CN8 Safety function | |
| | Overtravel | Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT | |
| Alarm | Alarm signal, MECHATROLINK-III command | | |
| Operating temperature range [°C] | | 0 to 55 (No freezing) | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | |
| Storage temperature range [°C] | | -20 to 85 (No freezing) | |
| Storage humidity range [%RH] | | 90 or less (No condensation) | |
| Insulation resistance [MΩ] | | 10 MΩ (500 VDC) | |
| Safety function | | STO (IEC 61800-5-2) | |
| Safety standards*1 | | EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL2, IEC 62061 SIL CL2, IEC 61800-5-2 | |
| Weight [g] | | 1000 | |

*1 Refer to the LECYU operation manual for details.

Model Selection

LET-X11 Series

Auto Switch

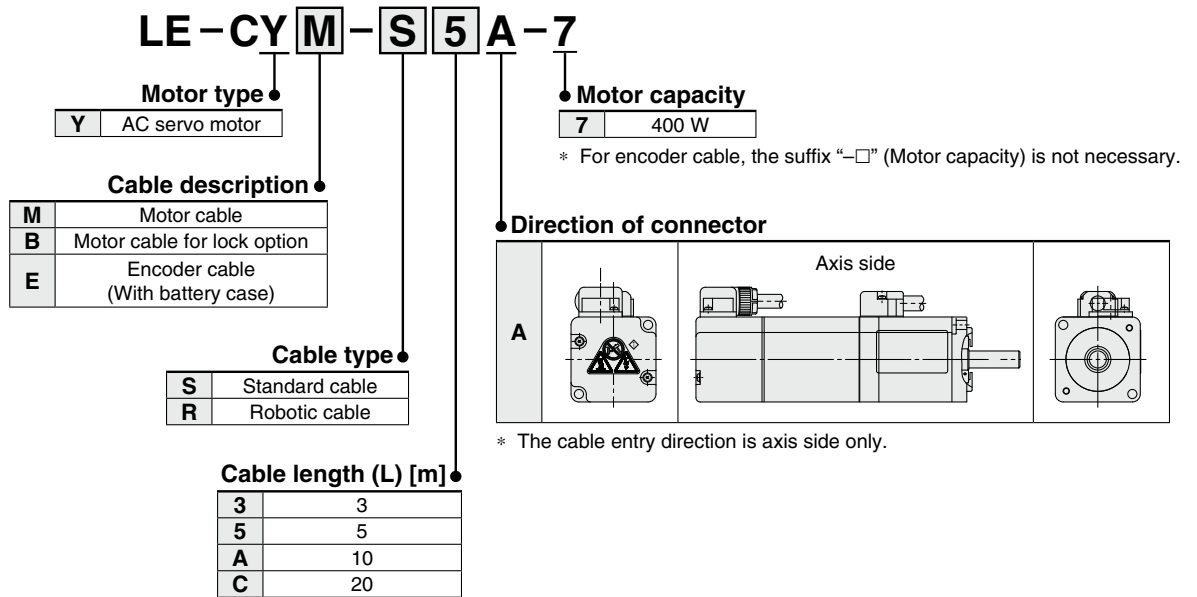
LECSA/LECS□-T Series

LECY□ Series

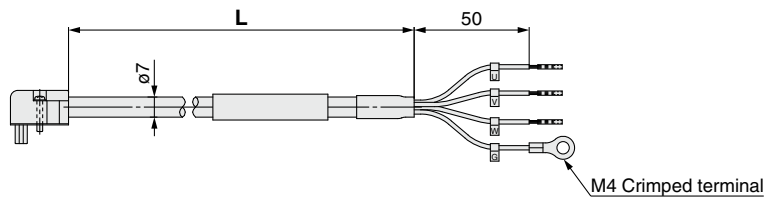
Specific Product Precautions

Options

Motor cable, Motor cable for lock option, Encoder cable (LECYM/LECYU common)



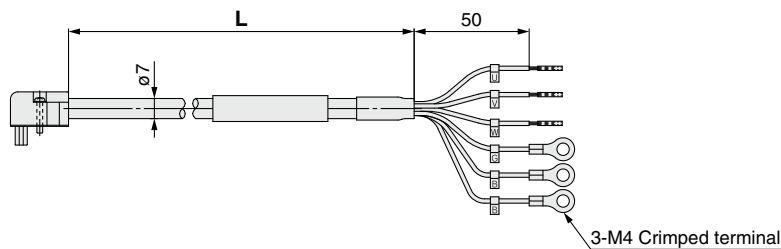
LE-CYM-□□A-□: Motor cable



Weight

| Product no. | Length [m] | Weight [g] | Note |
|--------------|------------|------------|-------|
| LE-CYM-S3A-7 | 3 | 250 | 400 W |
| LE-CYM-S5A-7 | 5 | 390 | |
| LE-CYM-SAA-7 | 10 | 750 | |
| LE-CYM-SCA-7 | 20 | 1500 | |
| LE-CYM-R3A-7 | 3 | 220 | |
| LE-CYM-R5A-7 | 5 | 350 | |
| LE-CYM-RAA-7 | 10 | 670 | |
| LE-CYM-RCA-7 | 20 | 1300 | |

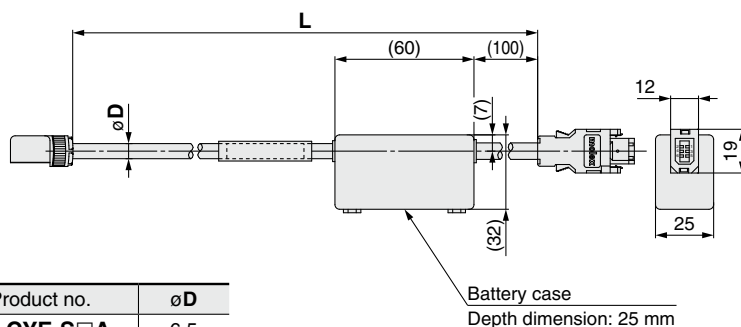
LE-CYB-□□A-□: Motor cable for lock option



Weight

| Product no. | Length [m] | Weight [g] | Note |
|--------------|------------|------------|-------|
| LE-CYB-S3A-7 | 3 | 240 | 400 W |
| LE-CYB-S5A-7 | 5 | 390 | |
| LE-CYB-SAA-7 | 10 | 750 | |
| LE-CYB-SCA-7 | 20 | 1490 | |
| LE-CYB-R3A-7 | 3 | 220 | |
| LE-CYB-R5A-7 | 5 | 350 | |
| LE-CYB-RAA-7 | 10 | 670 | |
| LE-CYB-RCA-7 | 20 | 1300 | |

LE-CYE-□□A: Encoder cable



Weight

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LE-CYE-S3A | 3 | 230 |
| LE-CYE-S5A | 5 | 360 |
| LE-CYE-SAA | 10 | 680 |
| LE-CYE-SCA | 20 | 1250 |
| LE-CYE-R3A | 3 | 220 |
| LE-CYE-R5A | 5 | 330 |
| LE-CYE-RAA | 10 | 660 |
| LE-CYE-RCA | 20 | 1240 |

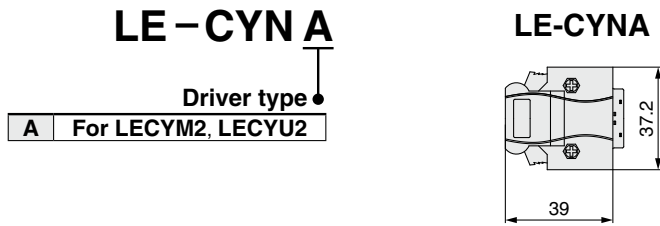
| Product no. | øD |
|-------------|-----|
| LE-CYE-S□A | 6.5 |
| LE-CYE-R□A | 6.8 |

* LE-CYM-S□A-□ is JZSP-CSM0□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYB-S□A-□ is JZSP-CSM1□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYE-S□A is JZSP-CSP05-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

LE-CYM-R□A-□ is JZSP-CSM2□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYB-R□A-□ is JZSP-CSM3□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYE-R□A is JZSP-CSP25-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

Options

I/O connector (Without cable, Connector only)

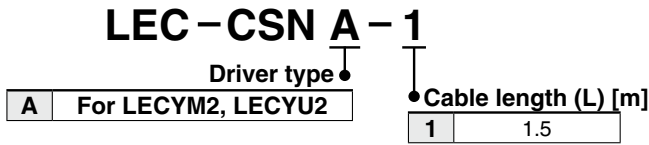


Weight

| Product no. | Weight [g] |
|----------------|------------|
| LE-CYNA | 25 |

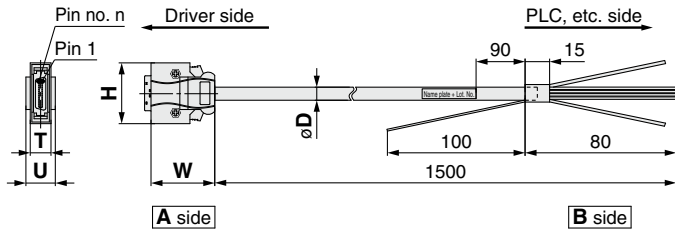
- * LE-CYNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- * Conductor size: AWG24 to 30

I/O cable



Weight

| Product no. | Weight [g] |
|-------------------|------------|
| LEC-CSNA-1 | 303 |



- * LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- * Conductor size: AWG24

Wiring

LEC-CSNA-1: Pin nos. 1 to 26

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark | Dot color | Connector pin no. | Pair no. of wire | Insulation color | Dot mark | Dot color | Connector pin no. | Pair no. of wire | Insulation color | Dot mark | Dot color | |
|-------------------|------------------|------------------|----------|-----------|-------------------|------------------|------------------|----------|-----------|-------------------|------------------|------------------|------------|-----------|-------|
| A side | 1 | Orange | ■ | Red | A side | 11 | Orange | ■ ■ | Red | A side | 21 | 11 | Orange | ■ ■ ■ ■ | Red |
| | 2 | | ■ | Black | | 12 | | ■ ■ | Black | | 22 | | | ■ ■ ■ ■ | Black |
| | 3 | Light gray | ■ | Red | | 13 | Light gray | ■ ■ | Red | | 23 | 12 | Light gray | ■ ■ ■ ■ | Red |
| | 4 | | ■ | Black | | 14 | | ■ ■ | Black | | 24 | | | ■ ■ ■ ■ | Black |
| | 5 | White | ■ | Red | | 15 | White | ■ ■ | Red | | 25 | 13 | White | ■ ■ ■ ■ | Red |
| | 6 | | ■ | Black | | 16 | | ■ ■ | Black | | 26 | | | ■ ■ ■ ■ | Black |
| | 7 | Yellow | ■ | Red | | 17 | Yellow | ■ ■ | Red | | | | | | |
| | 8 | | ■ | Black | | 18 | | ■ ■ | Black | | | | | | |
| | 9 | Pink | ■ | Red | | 19 | Pink | ■ ■ | Red | | | | | | |
| | 10 | | ■ | Black | | 20 | | ■ ■ | Black | | | | | | |

Cable O.D.

| Product no. | øD |
|-------------------|------|
| LEC-CSNA-1 | 11.1 |

Dimensions/Pin No.

| Product no. | W | H | T | U | Pin no. n |
|-------------------|----|------|------|----|-----------|
| LEC-CSNA-1 | 39 | 37.2 | 12.7 | 14 | 14 |

Model Selection

LET-X11 Series

Auto Switch

LECSA/LECS□-T Series

LECY□ Series

Specific Product Precautions

LECY^M_U Series

Options

MECHATROLINK cable type

LEC-CY **M** - **1**

Motor type

Y AC servo motor

Cable description

M MECHATROLINK-II cable
U MECHATROLINK-III cable

Cable length (L)

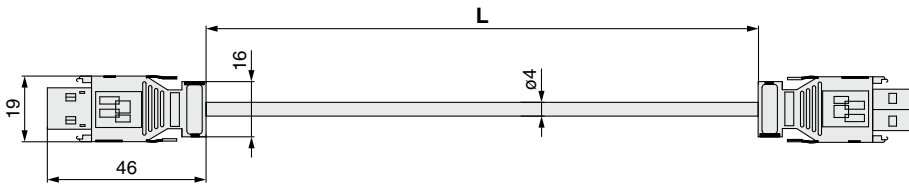
| | |
|------------------------|-------|
| L ^{*1} | 0.2 m |
| J | 0.5 m |
| 1 | 1 m |
| 3 | 3 m |

*1 Not available for the MECHATROLINK-II cable

* LEC-CYM-□ is JEPMC-W6002-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

* LEC-CYU-□ is JEPMC-W6012-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

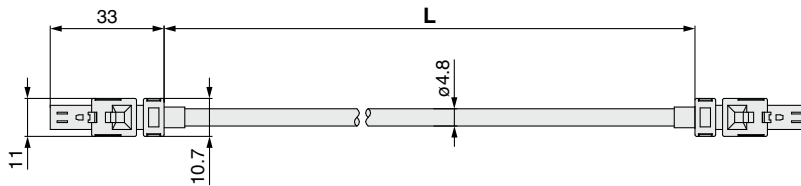
MECHATROLINK-II cable



Weight

| Product no. | Length [m] | Weight [g] |
|------------------|------------|------------|
| LEC-CYM-J | 0.5 | 50 |
| LEC-CYM-1 | 1 | 80 |
| LEC-CYM-3 | 3 | 200 |

MECHATROLINK-III cable



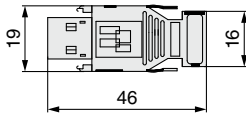
Weight

| Product no. | Length [m] | Weight [g] |
|------------------|------------|------------|
| LEC-CYU-L | 0.2 | 21 |
| LEC-CYU-J | 0.5 | 41 |
| LEC-CYU-1 | 1 | 75 |
| LEC-CYU-3 | 3 | 205 |

Terminating connector for MECHATROLINK-II

LEC-CYRM

* LEC-CYRM is JEPMC-W6022-E manufactured by YASKAWA CONTROLS CO., LTD.



Weight: 10 g

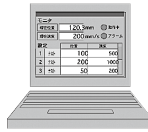
Options



LECYM2 LECYU2
Drivers



USB cable



PC

Setup software (SigmaWin+™) (LECYM/LECYU common)

* Please download the SigmaWin+™ via our website.
SigmaWin+™ is a registered trademark or trademark of YASKAWA Electric Corporation.

Adjustment, waveform display, parameter reading/writing, and test operations can be performed on a PC.

Compatible PCs

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

Hardware Requirements

| Equipment | | Setup software (SigmaWin+™) Ver. 5 | Setup software (SigmaWin+™) Ver. 7 |
|-------------------|--|---|--|
| *1, 2, 3, 4 PC | OS | Windows® XP*5, Windows Vista®, Windows® 7 (32-bit/64-bit) | Compatible with 64-bit OS · Windows 11, Windows 10, Windows 8.1*7, Windows 7 SP1*8 Compatible with 32-bit OS · Windows 10, Windows 8.1*7, Windows 7 SP1*8 |
| | Available HD space | 350 MB or more (When the software is installed, 400 MB or more is recommended.) | 500 MB or more |
| | Communication interface | Uses the USB port | |
| Display | XVGA monitor (1024 x 768 or more, used with small font) 256 color or more (65536 color or more is recommended) Connectable with the PCs listed above | Resolution: 1280 x 800 or more (Recommended) Connectable with the PCs listed above | |
| Keyboard | Connectable with the PCs listed above | | |
| Mouse | Connectable with the PCs listed above | | |
| Printer | Connectable with the PCs listed above | | |
| USB cable | LEC-JZ-CVUSB*6 | | |
| Other | Adobe Reader Ver. 5.0 or higher (* Excludes Ver. 6.0) | | — |

- *1 Windows, Windows Vista®, Windows® 7, Windows® 8.1, Windows® 10, and Windows® 11 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- *2 On some PCs, this software may not run properly.
- *3 Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®
- *4 For Windows® XP, install and run the software as an administrator.
- *5 For PCs that have HotfixQ328310 installed, installation of the software is likely to fail. In such cases, install HotfixQ329623 instead.
- *6 Order a USB cable separately.
- *7 WindowsUpdate KB2919442, KB2919355, and KB2999226 are required.
- *8 WindowsUpdate KB2999226 is required.

Battery (LECYM/LECYU common)

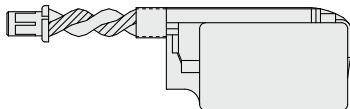
Replacement batteries must be purchased from YASKAWA Electric Corporation.

Part no.: JZSP-BA01

manufactured by YASKAWA Electric Corporation

Battery for replacement

Absolute position data is maintained by installing the battery to the battery case of the encoder cable.



Weight: 10 g

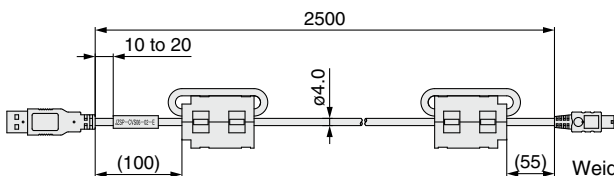
USB cable (2.5 m)

LEC-JZ-CVUSB

* JZSP-CVS06-02-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting the PC and driver when using the setup software (SigmaWin+™)

Do not use any cable other than this cable.



Weight: 150 g

* The JZSP-BA01 is a single battery that uses a lithium metal battery ER3V.

When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is to transport such products, it is necessary for them to confirm the latest regulations, or the laws and regulations of the country of transport, on their own in order to apply the proper measures.

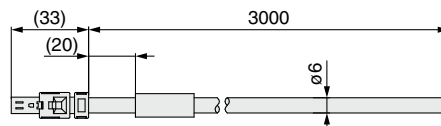
Cable for safety function device (3 m)

LEC-JZ-CVSAF

* JZSP-CVH03-03-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting the driver and device when using the safety function

Do not use any cable other than this cable.



Weight: 160 g



LECSA/LECS□-T/LECY□ Series Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

Design / Selection

Warning

- 1. Be sure to apply the specified voltage.**
Otherwise, malfunction or breakage may occur. If the applied voltage is lower than the specified voltage, it is possible that the load will not be able to be moved due to an internal voltage drop of the driver. Please check the operating voltage before use.
- 2. Do not operate the product beyond the specifications.**
Otherwise, a fire, malfunction, or actuator damage may result. Please check the specifications before use.
- 3. Install an emergency stop circuit.**
Please install an emergency stop outside of the enclosure so that the system operation can be stopped immediately and the power supply can be intercepted.
- 4. In order to prevent any damage caused by the breakdown or malfunction of the driver and its peripheral devices, a backup system should be established in advance by giving a multiple-layered structure or a fail-safe design to the equipment, etc.**
- 5. If the danger of human injury is expected due to abnormal heat generation, smoking, ignition, etc., of the driver and its peripheral devices, cut off the power supply of the product and the system immediately.**
- 6. The parameters of the driver are set to initial values. Please change the parameters according to the specifications of the customer's equipment before use. Refer to the operation manual for parameter details.**

Handling

Warning

- 1. Do not touch the inside of the driver and its peripheral devices.**
Doing so may cause an electric shock or damage to the driver.
- 2. Do not perform the operation or setting of the product with wet hands.**
Doing so may cause an electric shock.
- 3. Products with damage or those missing any components should not be used.**
An electric shock, fire, or injury may result.
- 4. Use only the specified combination between the electric actuator and the driver.**
Failure to do so may cause damage to the actuator or the driver.
- 5. Be careful not to be hit by workpieces while the actuator is moving.**
It may cause an injury.
- 6. Do not connect the power supply or power on the product before confirming the area to which the workpiece moves is safe.**
The movement of the workpiece may cause an accident.
- 7. Do not touch the product when it is energized and for some time after the power has been disconnected, as it is very hot.**
Doing so may lead to a burn due to the high temperature.
- 8. Before installation, wiring, and maintenance, the voltage should be checked with a tester 5 minutes after the power supply has been turned off.**
Otherwise, an electric shock, fire, or injury may result.

Handling

Warning

- 9. Static electricity may cause a malfunction or break the driver. Do not touch the driver while power is supplied.**
When touching the driver for maintenance, take sufficient measures to eliminate static electricity.
- 10. Do not use the product in an area where dust, powder dust, water, chemicals, or oil is in the air.**
It will cause failure or malfunction.
- 11. Do not use the product in an area where a magnetic field is generated.**
It will cause failure or malfunction.
- 12. Do not install the product in an environment containing flammable gas, explosive gas, or corrosive gas.**
It could lead to fire, explosion, or corrosion.
- 13. Radiant heat from strong heat sources, such as a furnace, direct sunlight, etc., should not be applied to the product.**
It will cause failure of the driver or its peripheral devices.
- 14. Do not use the product in an environment subject to a temperature cycle.**
It will cause failure of the driver or its peripheral devices.
- 15. Do not use the product in a place where surges are generated.**
When there are units that generate a large amount of surge around the product (e.g. solenoid type lifters, high-frequency induction furnaces, motors, etc.), this may cause deterioration or damage to the product's internal circuit. Avoid sources of surge generation and crossed lines.
- 16. Do not install the product in an environment under the effect of vibrations and impacts.**
It will cause failure or malfunction.
- 17. When a surge-generating load, such as a relay or solenoid valve, is driven directly, use a product that incorporates a surge absorption element.**

Installation

Warning

- 1. Install the driver and its peripheral devices on a fire-proof material.**
Direct installation on or near a flammable material may cause a fire.
- 2. Do not install the product in a place subject to vibrations and impacts.**
It will cause failure or malfunction.
- 3. The driver should be mounted on a vertical wall in a vertical direction. Also, be sure not to cover the driver's suction/exhaust ports.**
- 4. Install the driver and its peripheral devices on a flat surface.**
If the mounting surface is distorted or uneven, an unacceptable force may be added to the housing, etc., causing problems.



LECSA/LECS□-T/LECY□ Series Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

Power Supply

⚠ Caution

1. Use a power supply that has low noise between lines and between the power and ground.
In cases where noise is high, an isolation transformer should be used.
2. To prevent lightning surges, appropriate measures should be taken. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

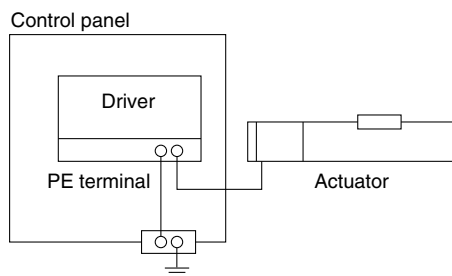
⚠ Warning

1. The driver will be damaged if a commercial power supply (100/200 V) is added to the driver's servo motor power (U, V, and W). Be sure to check wiring for mistakes when the power supply is turned on.
2. Connect the ends of the U, V, and W wires of the motor cable correctly to the phases (U, V, and W) of the servo motor power. If these wires do not match up, the servo motor cannot be controlled.

Grounding

⚠ Warning

1. For grounding the actuator, connect the copper wire of the actuator to the driver's protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel's protective earth (PE) terminal. Do not connect them directly to the control panel's protective earth (PE) terminal.



2. In the unlikely event that a malfunction is caused by the ground, please disconnect it.

Maintenance

⚠ Warning

1. Perform a maintenance and inspection periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unintentional malfunction.
2. Conduct an appropriate functional inspection after completing the maintenance and inspection.
At times where the equipment or machinery does not operate properly, conduct an emergency stop of the system. Otherwise, an unexpected malfunction may occur and it will become impossible to ensure safety. Conduct a test of the emergency stop in order to confirm the safety of the equipment.
3. Do not disassemble, modify, or repair the driver and its peripheral devices.
4. Do not put anything conductive or flammable inside the driver.
It may cause a fire.
5. Do not conduct an insulation resistance test or withstand voltage test on this product.
6. Ensure sufficient space for maintenance activities.
Design the system allowing the required space for maintenance and inspection.

CE/UKCA/UL-compliance List

* For CE, UKCA, and UL-compliant products, refer to the tables below.

As of May 2023

■ Controllers "○": Compliant "x": Not compliant

| Compatible motor | Series | CE UK CA | cUL ^{us} LISTED | |
|------------------|----------|----------------|-----------------------------|------------------------------|
| | | | Compliance | Certification No. (File No.) |
| AC servo motor | LECSA | ○ | ○ | E466261 |
| | LECSB-T | ○ | ○ | E466261 |
| | LECS-C-T | ○ | ○ | E466261 |
| | LECSS-T | ○ | ○ | E466261 |
| | LECYM | ○ | x | — |
| | LECYU | ○ | x | — |

■ Actuators "○": Compliant

| Compatible motor | Series | CE UK CA | cUL ^{us} | |
|------------------|--------|----------------|-------------------|------------------------------|
| | | | Compliance | Certification No. (File No.) |
| AC servo motor | LET | ○ | N/A | — |

* If the actuator is ordered separately, it does not comply with UL standards.

■ Actuators (When ordered with a controller) "○": Compliant "—": Not applicable


| Compatible motor | Series | LECSA* ¹ | | | | LECSB-T* ¹ | | | | LECS-C-T* ¹ | | | |
|------------------|--------|---------------------|------------------------------|-------------------|------------------------------|-----------------------|------------------------------|-------------------|------------------------------|------------------------|------------------------------|-------------------|------------------------------|
| | | CE UK CA | | cUL ^{us} | | CE UK CA | | cUL ^{us} | | CE UK CA | | cUL ^{us} | |
| | | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) |
| AC servo motor | LET | ○ | N/A | — | ○ | N/A | — | ○ | N/A | — | ○ | N/A | — |


| Compatible motor | Series | LECSS-T* ¹ | | | | LECYM-V | | | | LECYU-V | | | |
|------------------|--------|-----------------------|------------------------------|-------------------|------------------------------|----------------|------------------------------|-------------------|------------------------------|----------------|------------------------------|-------------------|------------------------------|
| | | CE UK CA | | cUL ^{us} | | CE UK CA | | cUL ^{us} | | CE UK CA | | cUL ^{us} | |
| | | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) |
| AC servo motor | LET | ○ | N/A | — | ○ | N/A | — | ○ | N/A | — | ○ | N/A | — |


*¹ There is a "UL Listed" mark on the AC servo motor driver body.

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

 **Danger** : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

 **Warning**: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Caution**: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

SMC Corporation