Electric Actuator
Large Slider Type Belt Drive

Size: **80, 100**

AC Servo Motor

New

CE UKCA

* For details, refer to page 49.

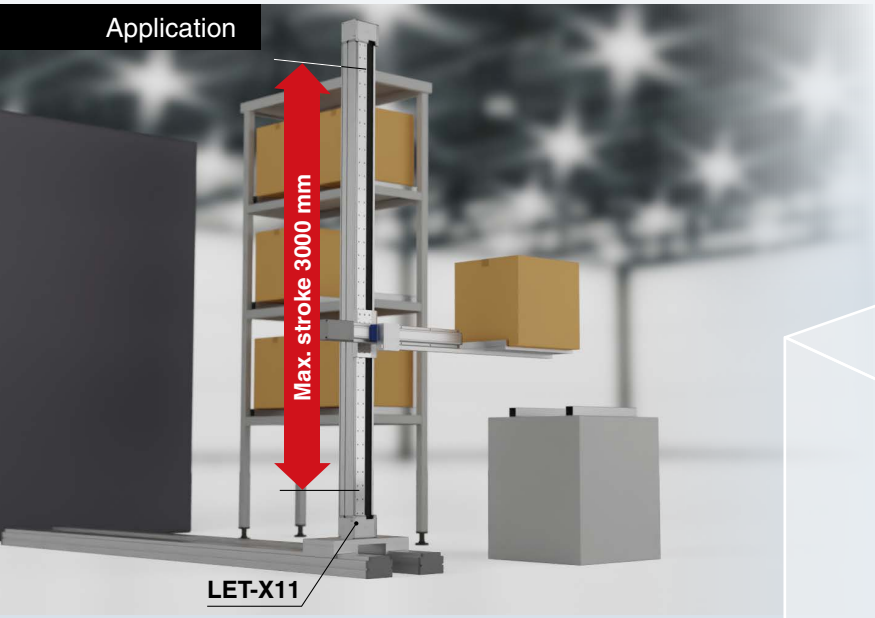
RoHS

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

Stroke Up to 3000 mm (Standard)

Max. speed [mm/s]	Max. acceleration/ deceleration [mm/s²]
4000 (Size 100) 2160 (Size 80)	20000

Application



* 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.

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

LET-X11 Series

SMC

CAT.ES100-158A

Low profile, Low center of gravity

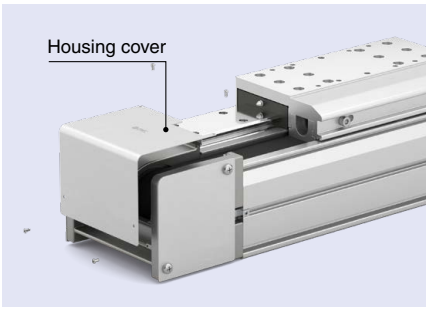
Height: **109 mm** (**LET80**)/**166 mm** (**LET100**)

[mm]

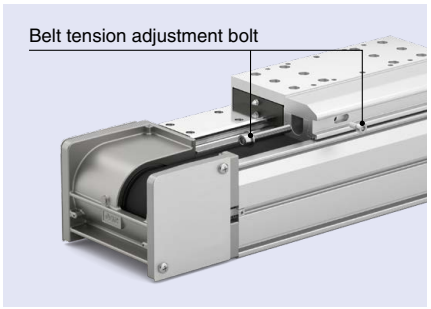
Size	Height	Stroke
80	109	3000
100	166	

Easy replacement of the timing belt

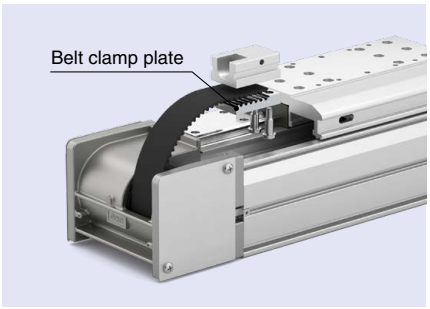
Disconnect the housing cover retaining screw, and remove the housing cover.



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

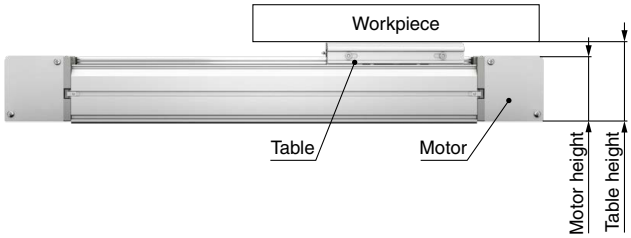


Remove the belt clamp plate, and replace the belt.



Workpiece does not interfere with the motor.

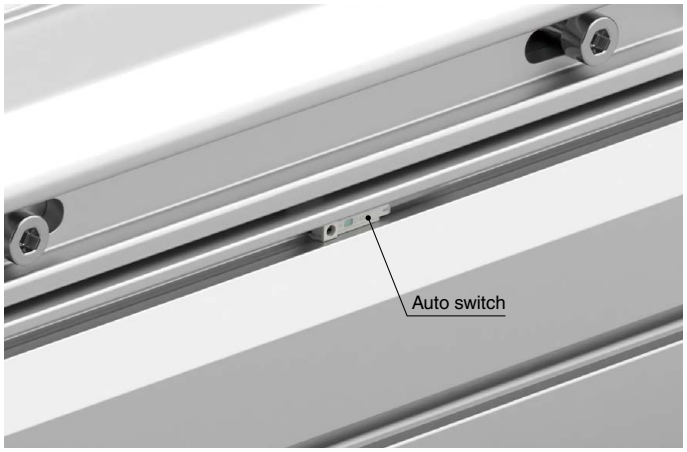
Table height > Motor height

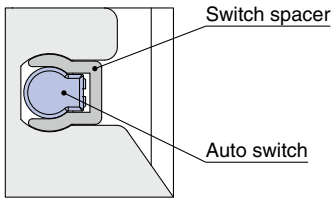


Solid state auto switches are mountable.

(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)

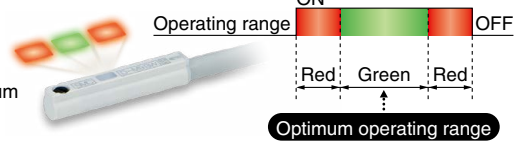




2-color indicator solid state auto switch

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

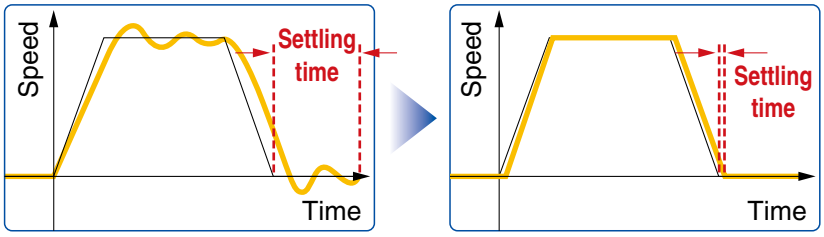
Series			Compatible motor		Control method			Application/Function			Compatible option
			400 W	750 W	Positioning*1	Pulse	Network direct input	Synchronous*2	Pushing operation*4	Safety function STO	Setup software
Incremental Type	**LECSA** (Pulse input type/ Positioning type)		●		Up to 7 points ●	●					LEC-MRC2 ●
Absolute Type	**LECSB-T** (Pulse input type/ Positioning type)		●	●	Up to 255 points ●	●			*4 ●	●	LEC-MRC2 ●
	CC-Link **LECSC-T** (CC-Link direct input type)		●	●	Up to 255 points ●		CC-Link Ver. 1.10 ●				LEC-MRC2 ●
	SSCNETⅢ/H SERVO SYSTEM CONTROLLER NETWORK **LECSS-T** (SSCNETⅢ/H type) Compatible with Mitsubishi Electric's servo system controller network		●	●			SSCNETⅢ/H ●	*2 ●	*4 ●	●	LEC-MRC2 ●
	MECHATROLINK-Ⅱ **LECYM**		●				MECHATRO LINK-Ⅱ ●	*3 ●		●	SigmaWin+™ ●
	MECHATROLINK-Ⅲ **LECYU**		●				MECHATRO LINK-Ⅲ ●	*3 ●		●	SigmaWin+™ ●

*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 LECSB-T" to the setup software (MR Configurator2™: LEC-MRC2□).
Please download this dedicated file from the SMC website: https://www.smcworld.com

Gain adjustment using auto tuning

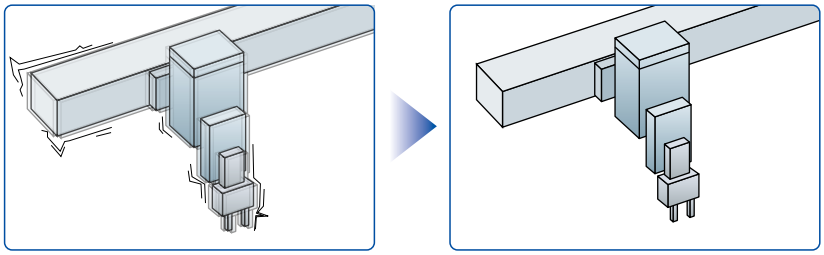
Auto-tuning function

- 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)

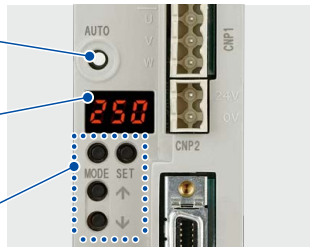


With display setting function

One-touch adjustment button
One-touch servo adjustment

Display
Display the monitor, parameters, and alarm.

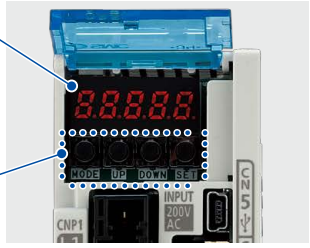
Settings
Set the parameters, monitor display, etc., with push buttons.



LECSA

Display
Display the monitor, parameters, and alarm.

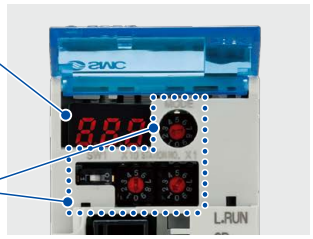
Settings
Set the parameters, monitor display, etc., with push buttons.



(With the front cover opened)
LECSB-T

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

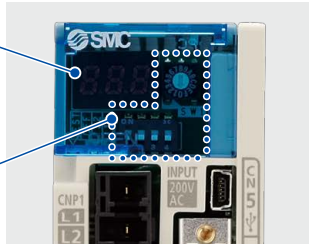
Settings
Control the Baud rate, station number, and the occupied station count.



(With the front cover opened)
LECSC-T

Display
Display the communication status with the driver and the alarm.

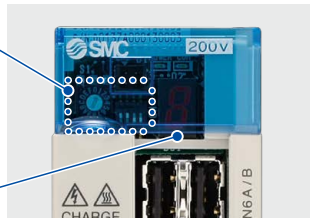
Settings
Switches for axis setting, control axis deactivation, switching to the test operation, etc.



LECSS2-T

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

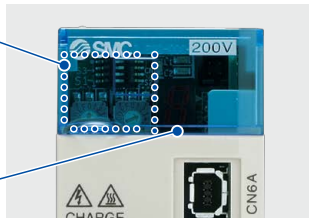
Display
Display the driver status and alarm.



LECYM

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

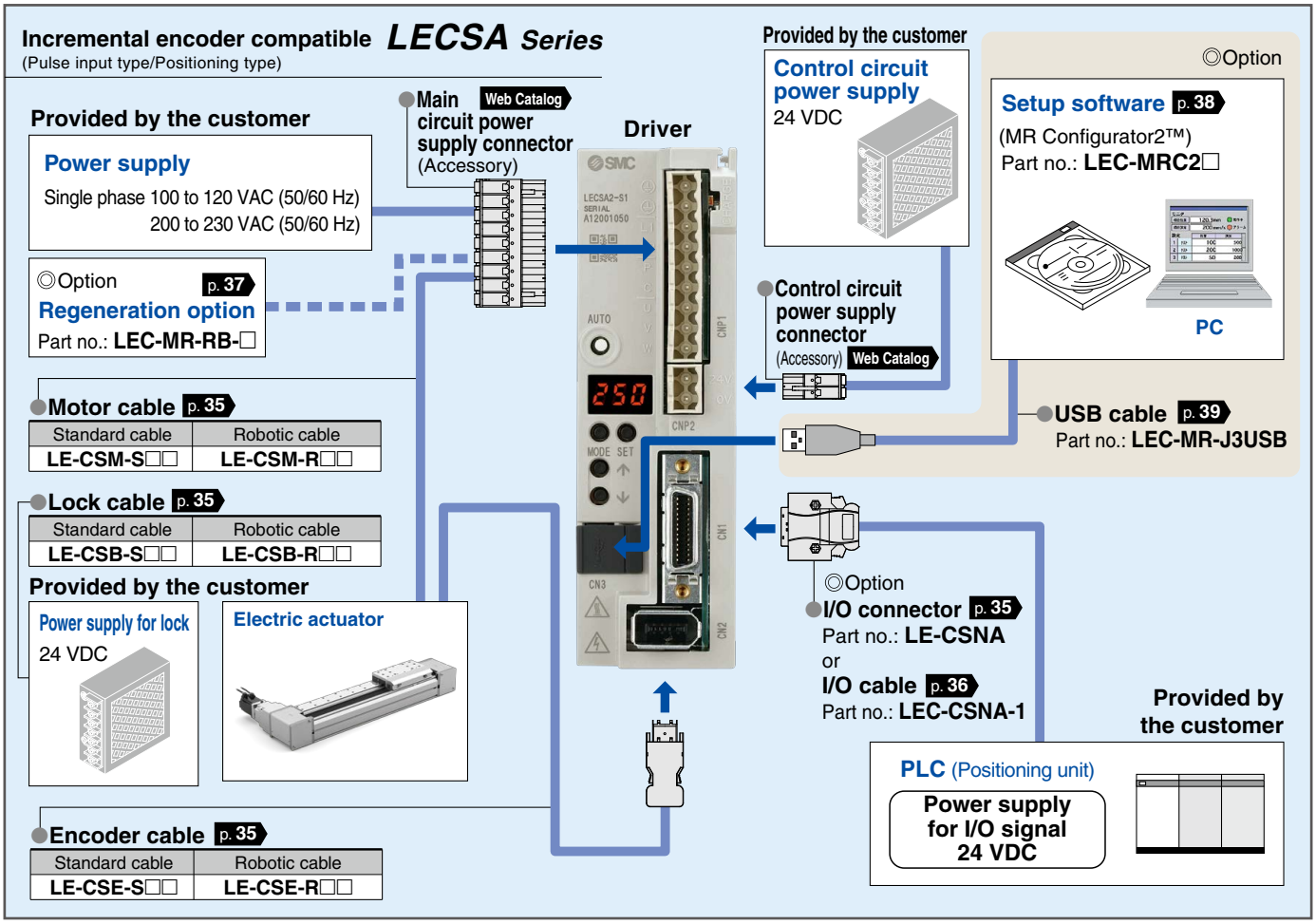
Display
Display the driver status and alarm.



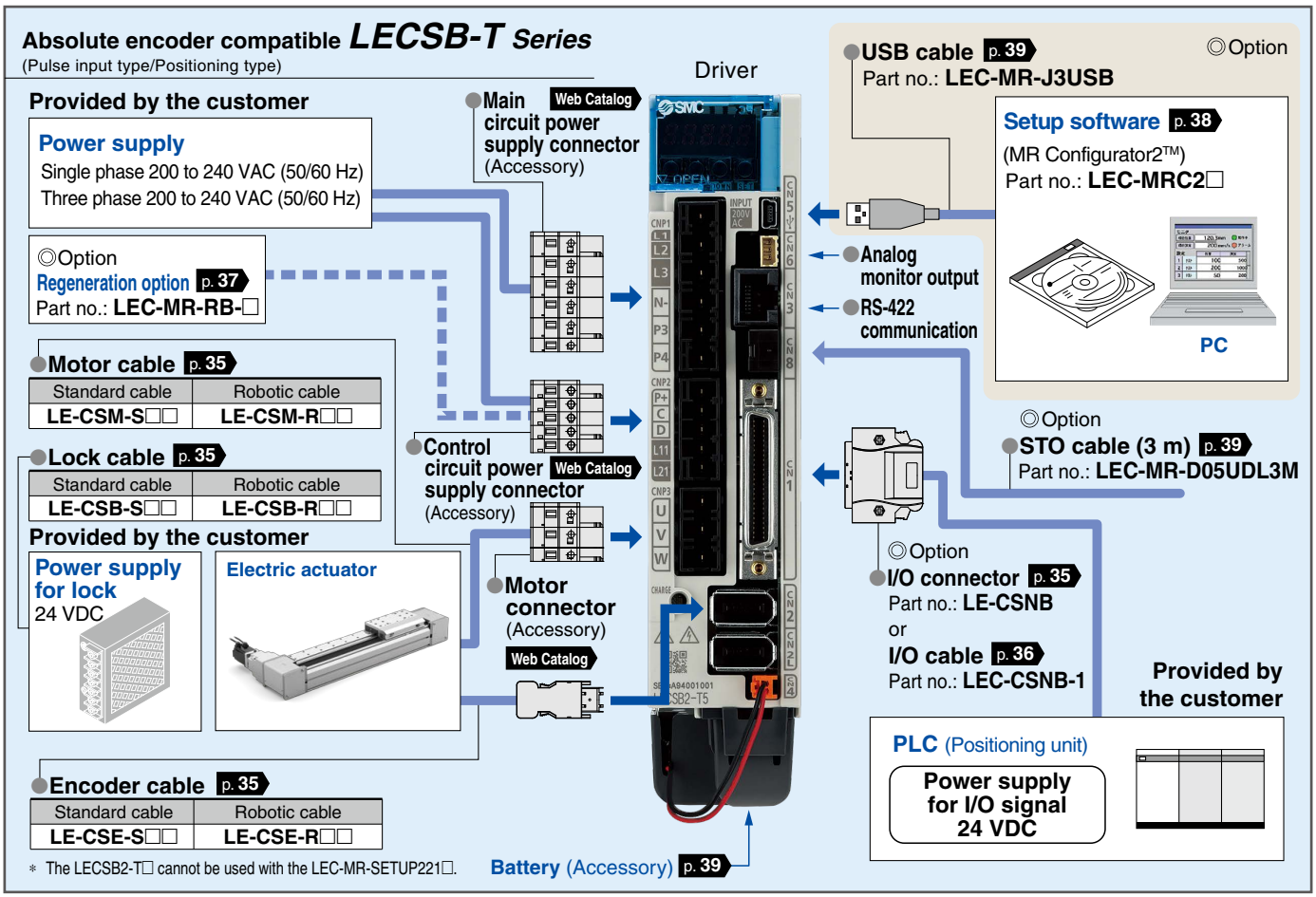
LECYU

System Construction

Incremental encoder compatible *LECSA Series*
(Pulse input type/Positioning type)



Absolute encoder compatible *LECSB-T Series*
(Pulse input type/Positioning type)



∗ The LECSB2-T□ cannot be used with the LEC-MR-SETUP221□.

System Construction

Absolute encoder compatible *LECSC-T Series*
(CC-Link direct input type)

Provided by the customer

Power supply
Single phase 200 to 230 VAC (50/60 Hz)
Three phase 200 to 230 VAC (50/60 Hz)

◎Option
Regeneration option p. 37
Part no.: LEC-MR-RB-□

Motor cable p. 35

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

Lock cable p. 35

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

Provided by the customer

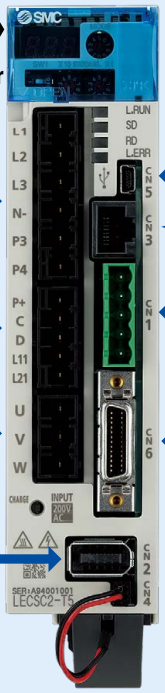
Power supply for lock
24 VDC

Electric actuator

Encoder cable p. 35

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

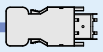
Driver



Main circuit power supply connector (Accessory) Web Catalog

Control circuit power supply connector (Accessory) Web Catalog

Motor connector (Accessory) Web Catalog

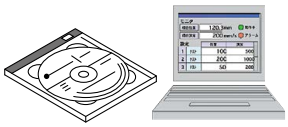


Battery (Accessory) p. 39

USB cable p. 39
Part no.: LEC-MR-J3USB

◎Option

Setup software p. 38
(MR Configurator2™)
Part no.: LEC-MRC2□



PC

RS-422 communication

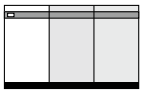
CC-Link connector*1 (Accessory)

◎Option
I/O connector p. 35
Part no.: LE-CSNA
or
I/O cable p. 36
Part no.: LEC-CSNA-1

Provided by the customer

PLC (CC-Link master unit)

Power supply for I/O signal 24 VDC



＊ The LECSC2-T□ cannot be used with the LEC-MR-SETUP221□.　＊1 Product number: K05A50230600 manufactured by Mitsubishi Electric System & Service Co., Ltd.

Absolute encoder compatible *LECSS-T Series*
SSCNETⅢ/H
SERVO SYSTEM CONTROLLER NETWORK

Provided by the customer

Power supply
Single phase 200 to 240 VAC (50/60 Hz)
Three phase 200 to 240 VAC (50/60 Hz)

◎Option
Regeneration option p. 37
Part no.: LEC-MR-RB-□

Motor cable p. 35

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

Lock cable p. 35

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

Provided by the customer

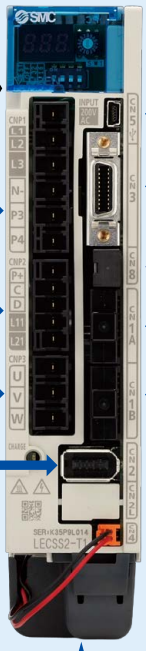
Power supply for lock
24 VDC

Electric actuator

Encoder cable p. 35

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

Driver



Main circuit power supply connector (Accessory) Web Catalog

Control circuit power supply connector (Accessory) Web Catalog

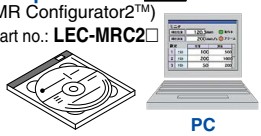
Motor connector (Accessory) Web Catalog

Battery (Accessory) p. 39

◎Option

USB cable p. 39
Part no.: LEC-MR-J3USB

Setup software p. 38
(MR Configurator2™)
Part no.: LEC-MRC2□



PC

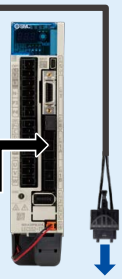
CN3

◎Option
I/O connector p. 35
Part no.: LE-CSNS
or
I/O cable p. 36
Part no.: LEC-CSNS-1

◎Option
STO cable (3 m) p. 39
Part no.: LEC-MR-D05UDL3M

CN1A

◎Option
SSCNETⅢ optical cable p. 36
Part no.: LE-CSS-□



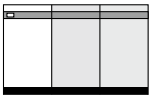
CN1B

CN1A

Provided by the customer

PLC (Positioning unit/Motion controller)

Power supply for I/O signal 24 VDC



＊ The LECSS2-T□ cannot be used with the LEC-MR-SETUP221□.

System Construction

Absolute encoder compatible *LECYM Series*

MECHATROLINK-Ⅱ type

Provided by the customer

Power supply
Single phase 200 to 230 VAC (50/60 Hz)
Three phase 200 to 230 VAC (50/60 Hz)

Provided by the customer

External regenerative resistor Web Catalog

∗ If an external regenerative resistor is required, it should be provided by the customer. For external regenerative resistor selection, refer to the compatible actuator catalog.

Main circuit power supply connector (Accessory) Web Catalog

Driver

◎Option
MECHATROLINK-Ⅱ cable p. 45
Part no.: **LEC-CYM-□**

2nd driver

Provided by the customer
PLC (Positioning unit/Motion controller)
Power supply for I/O signal 24 VDC

Motor cable p. 43

Standard cable	Robotic cable
LE-CYM-S□A-□	LE-CYM-R□A-□

Motor cable for lock option p. 43

Standard cable	Robotic cable
LE-CYB-S□A-□	LE-CYB-R□A-□

Provided by the customer
Power supply for lock
24 VDC

Electric actuator

Motor connector (Accessory) Web Catalog

◎Option
USB cable p. 46
Part no.: **LEC-JZ-CVUSB**

Setup software p. 46
(SigmaWin+™)
Please download it via our website.

PC

∗ Order the USB cable (Part no.: **LEC-JZ-CVUSB**) separately to use this software.

◎Option
I/O p. 44 **connector**
Part no.: **LE-CYNA**
or
I/O cable p. 44
Part no.: **LEC-CSNA-1**

Encoder cable p. 43

Standard cable	Robotic cable
LE-CYE-S□A	LE-CYE-R□A

Cable for safety function device (3 m) p. 46
Part no.: **LEC-JZ-CVSAF**

Absolute encoder compatible *LECYU Series*

MECHATROLINK-Ⅲ type

Provided by the customer

Power supply
Single phase 200 to 230 VAC (50/60 Hz)
Three phase 200 to 230 VAC (50/60 Hz)

Provided by the customer

External regenerative resistor Web Catalog

∗ If an external regenerative resistor is required, it should be provided by the customer. For external regenerative resistor selection, refer to the compatible actuator catalog.

Main circuit power supply connector (Accessory) Web Catalog

Driver

◎Option
MECHATROLINK-Ⅲ cable p. 45
Part no.: **LEC-CYU-□**

2nd driver

Provided by the customer
PLC (Positioning unit/Motion controller)
Power supply for I/O signal 24 VDC

Motor cable p. 43

Standard cable	Robotic cable
LE-CYM-S□A-□	LE-CYM-R□A-□

Motor cable for lock option p. 43

Standard cable	Robotic cable
LE-CYB-S□A-□	LE-CYB-R□A-□

Provided by the customer
Power supply for lock
24 VDC

Electric actuator

Motor connector (Accessory) Web Catalog

◎Option
USB cable p. 46
Part no.: **LEC-JZ-CVUSB**

Setup software p. 46
(SigmaWin+™)
Please download it via our website.

PC

∗ Order the USB cable (Part no.: **LEC-JZ-CVUSB**) separately to use this software.

◎Option
I/O p. 44 **connector**
Part no.: **LE-CYNA**
or
I/O cable p. 44
Part no.: **LEC-CSNA-1**

Encoder cable p. 43

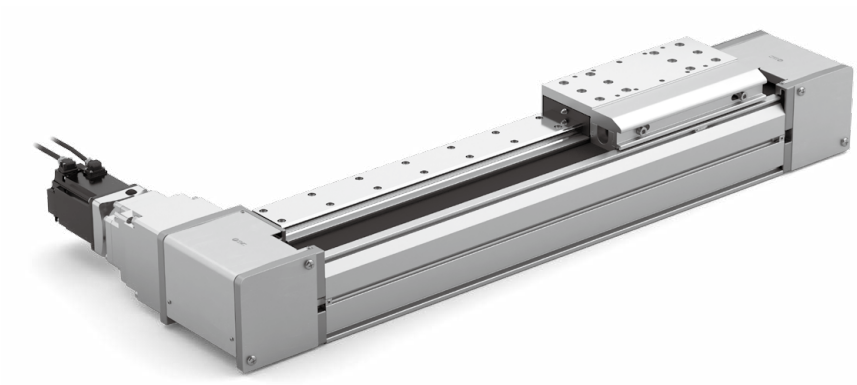
Standard cable	Robotic cable
LE-CYE-S□A	LE-CYE-R□A

Cable for safety function device (3 m) p. 46
Part no.: **LEC-JZ-CVSAF**

Large Slider Type

Belt Drive *LET-X11 Series*

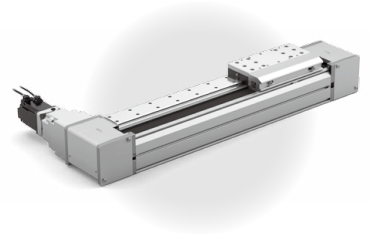
AC Servo Motor



CONTENTS

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

AC Servo Motor

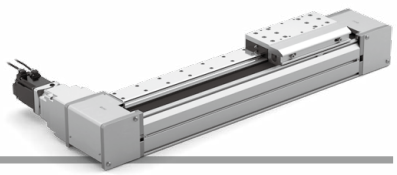


AC Servo Motor Drivers *LECSA/LECS□-T/LECY□ Series*

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

AC Servo Motor Driver *LECYM/LECYU Series*

Model Selection



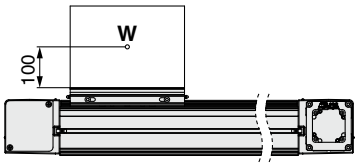
Selection Procedure

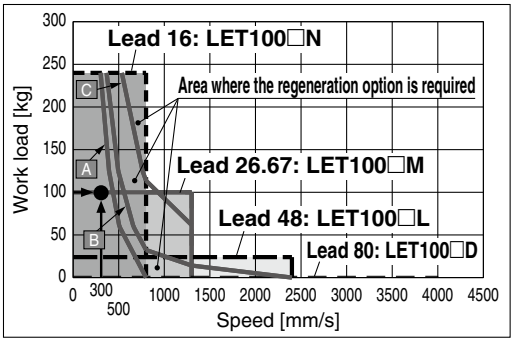
Step 1 Check the work load–speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Work load: 100 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- 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.

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

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.

$T1 = V/a1 = 300/3000 = 0.1$ [s],

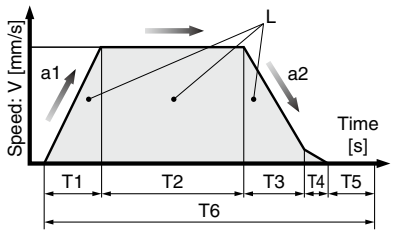
$T3 = V/a2 = 300/3000 = 0.1$ [s]

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

$T4 = 0.05$ [s]

The cycle time can be found as follows.

$T = T1 + T2 + T3 + T4$
$= 0.1 + 0.90 + 0.1 + 0.05$
$=$ **1.15 [s]**



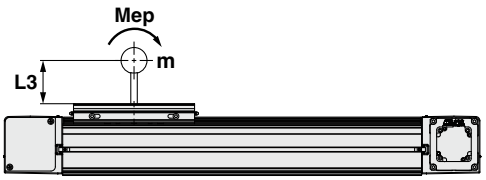
L : Stroke [mm]
V : Speed [mm/s]
a1: Acceleration [mm/s^2]
a2: Deceleration [mm/s^2]

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

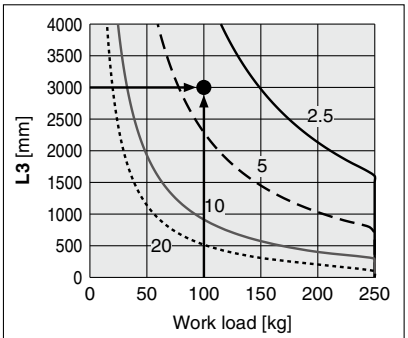
Duty ratio: Ratio of T to T6
T ÷ T6 x 100

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.)

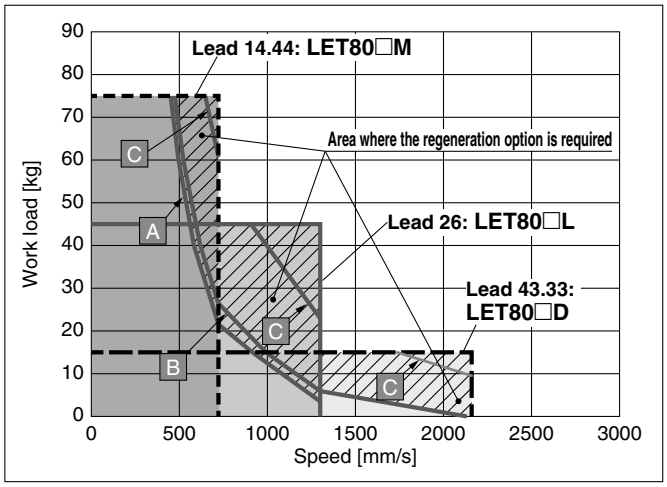


<Dynamic allowable moment> (LET100)

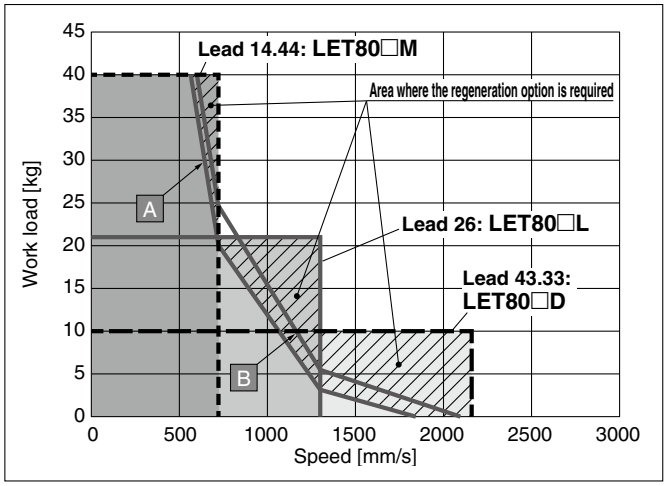
Speed–Work Load Graph/Required Conditions for the Regeneration Option (Guide)

LET80/Belt Drive

Horizontal

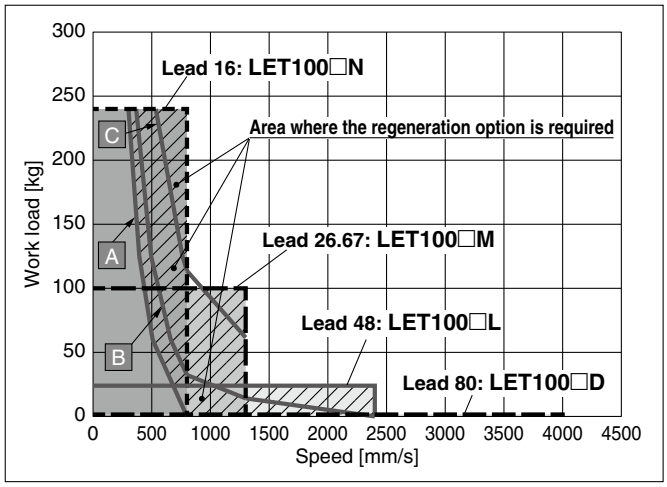


Vertical

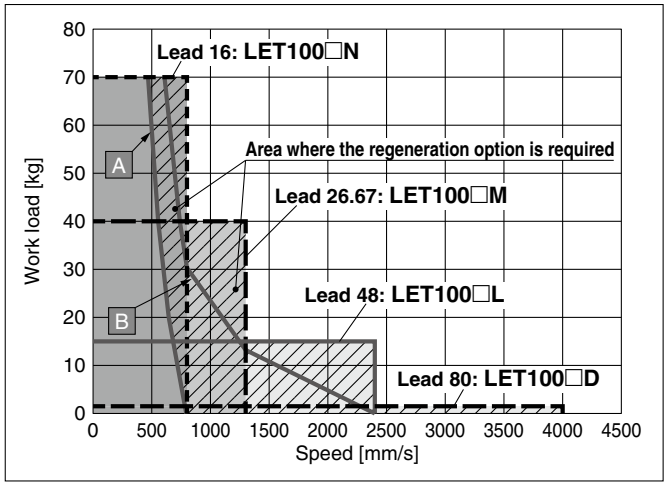


LET100/Belt Drive

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.

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

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.

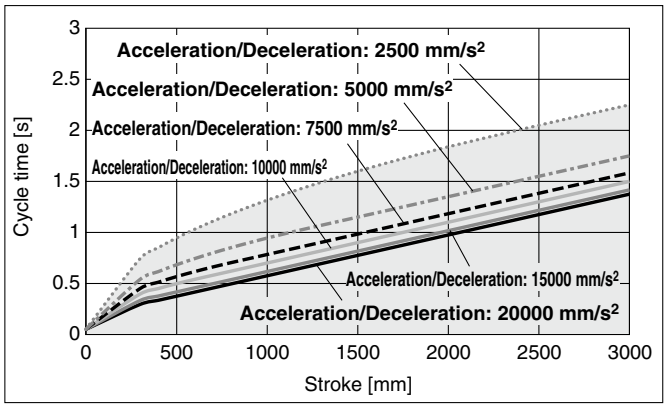
Applicable Motors/Drivers

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

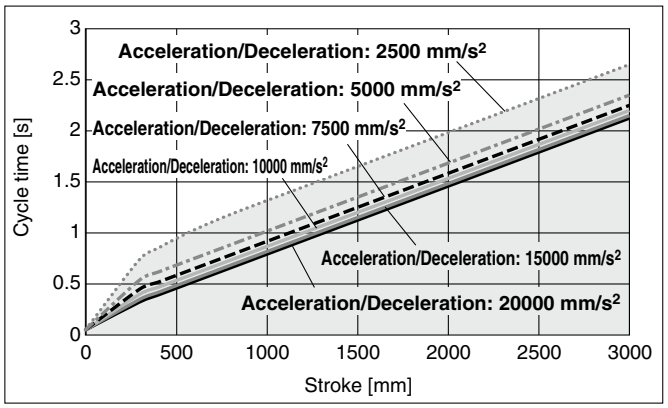
Cycle Time Graph (Guide)

LET80/Belt Drive

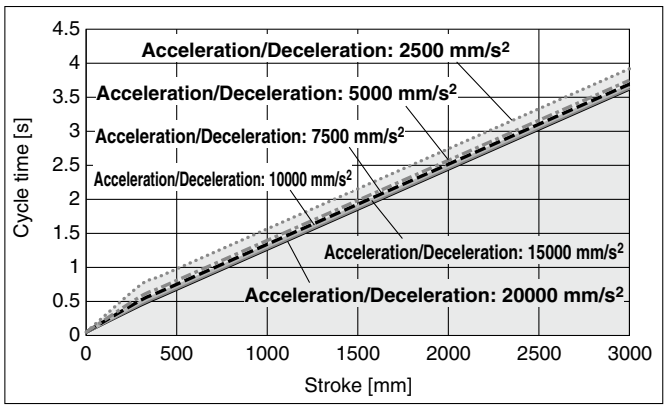
LET80□D



LET80□L

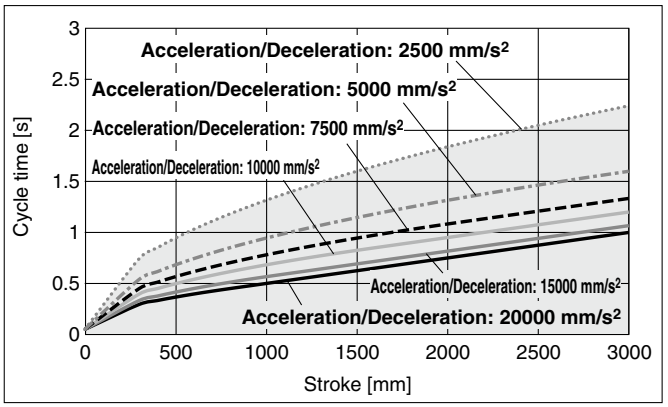


LET80□M

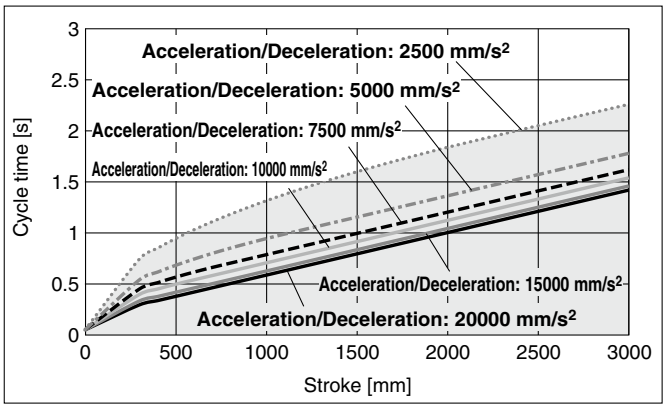


LET100/Belt Drive

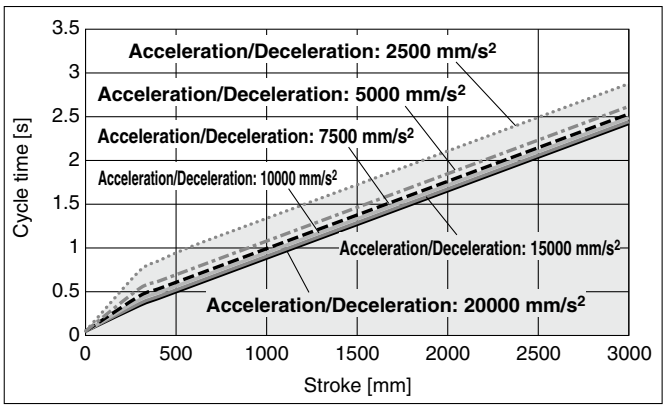
LET100□D



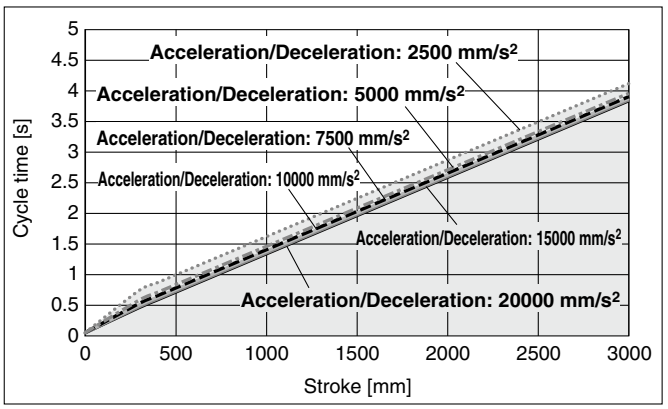
LET100□L



LET100□M



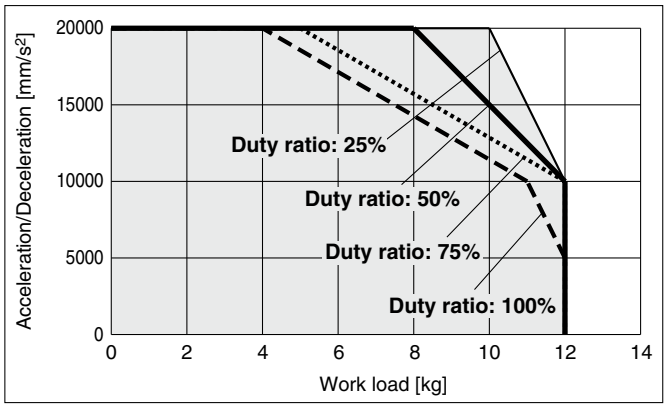
LET100□N



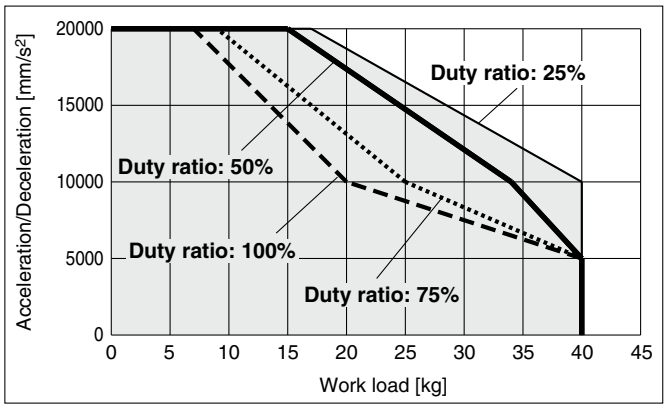
Work Load–Acceleration/Deceleration Graph (Guide)

LET80/Belt Drive: Horizontal

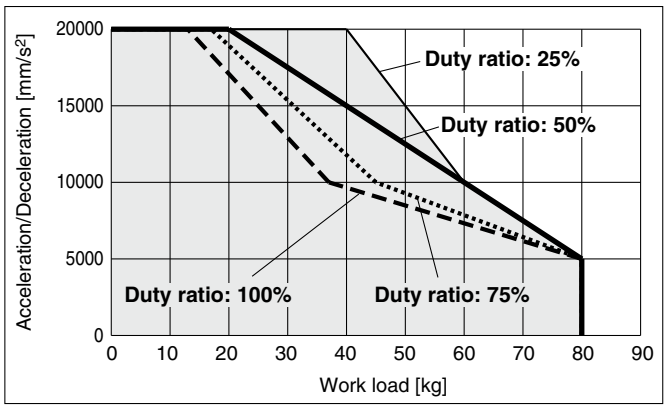
LET80□S4D



LET80□S4L

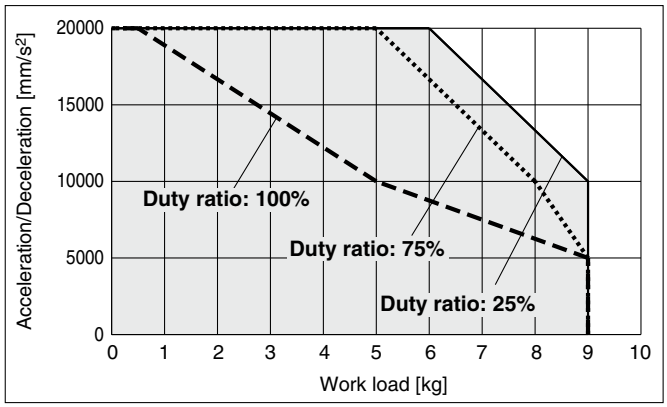


LET80□S4M

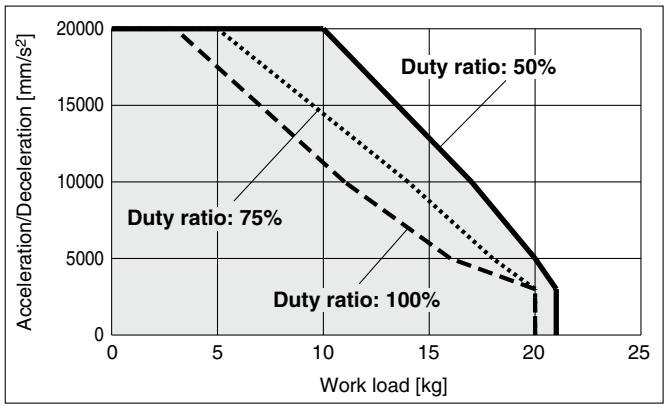


LET80/Belt Drive: Vertical

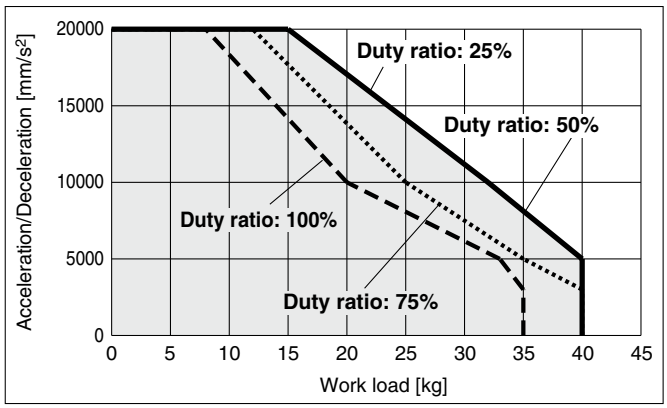
LET80□S4D



LET80□S4L



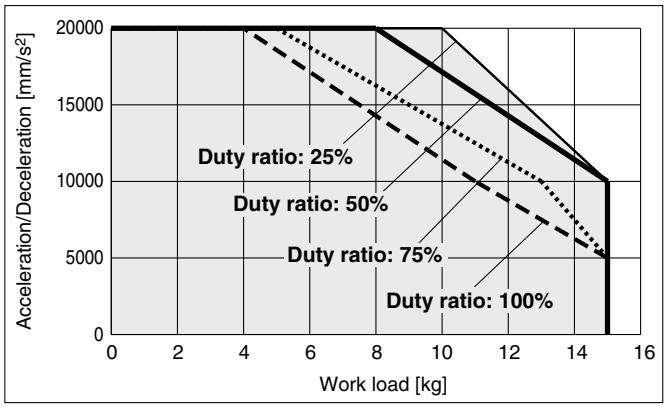
LET80□S4M



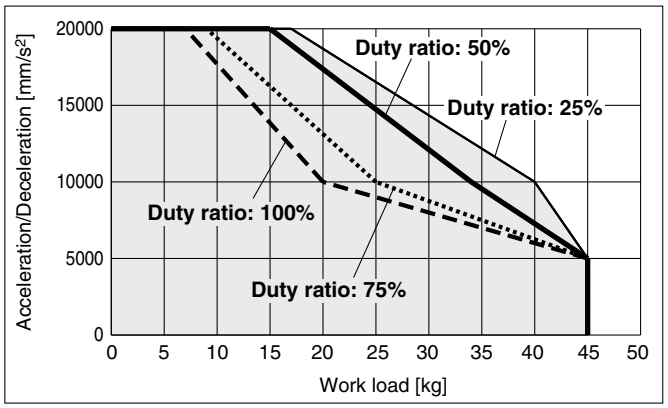
Work Load–Acceleration/Deceleration Graph (Guide)

LET80/Belt Drive: Horizontal

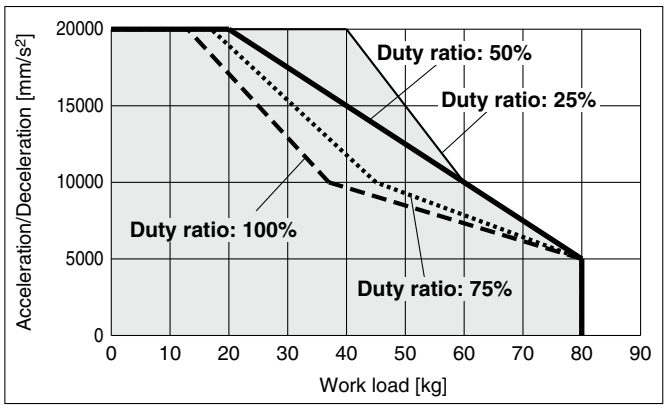
LET80□T8D



LET80□T8L

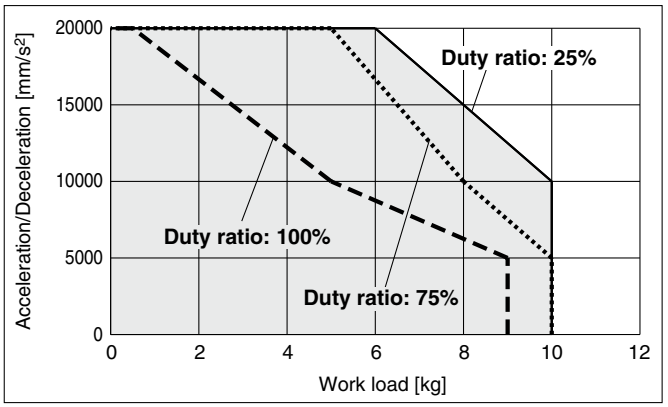


LET80□T8M

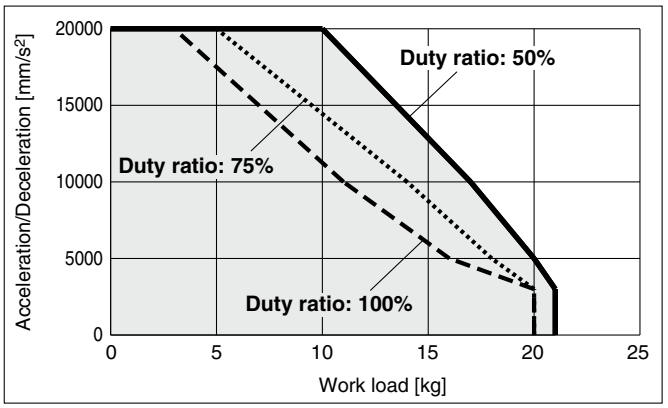


LET80/Belt Drive: Vertical

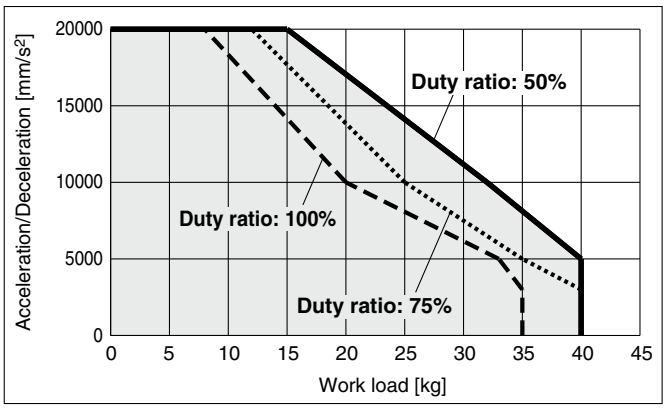
LET80□T8D



LET80□T8L



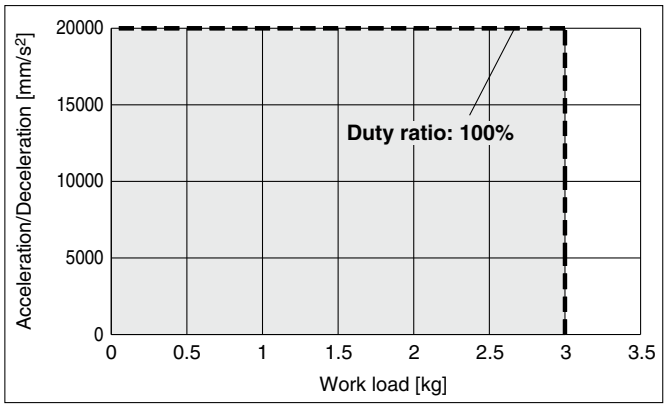
LET80□T8M



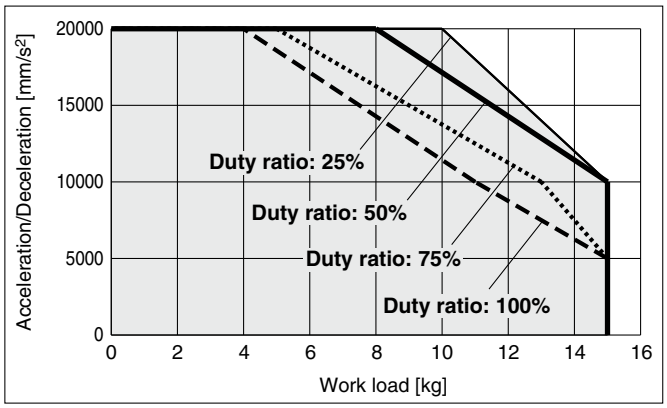
Work Load–Acceleration/Deceleration Graph (Guide)

LET80/Belt Drive: Horizontal

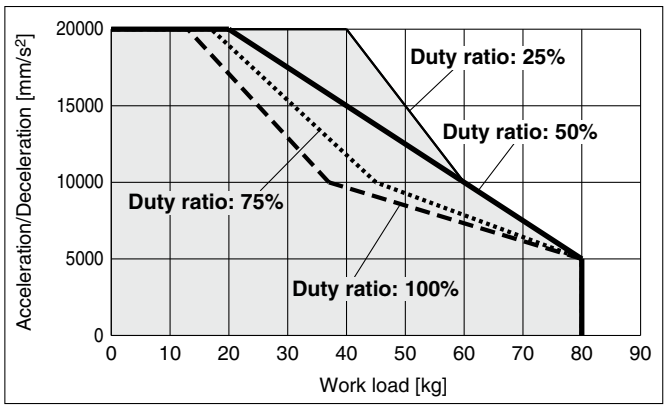
LET80□V8D



LET80□V8L

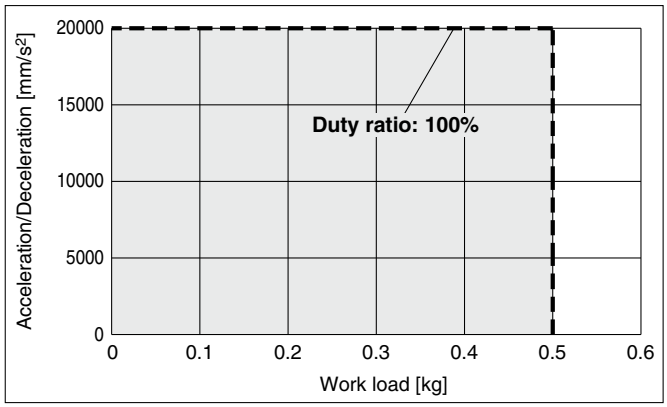


LET80□V8M

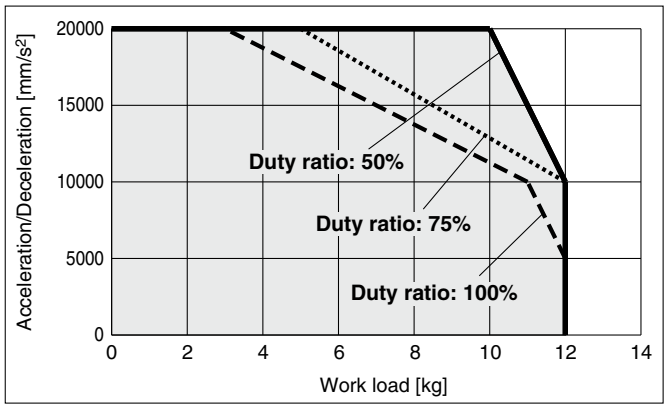


LET80/Belt Drive: Vertical

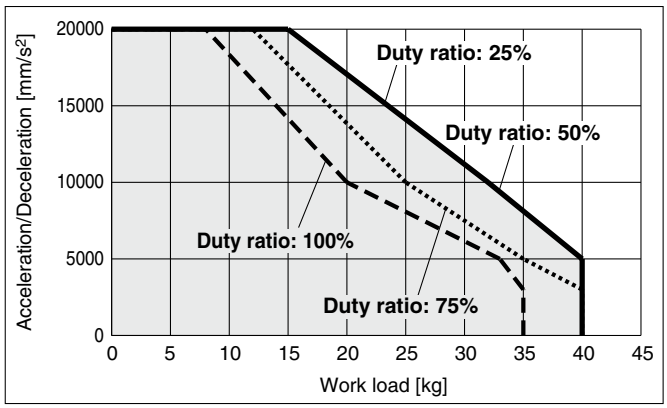
LET80□V8D



LET80□V8L



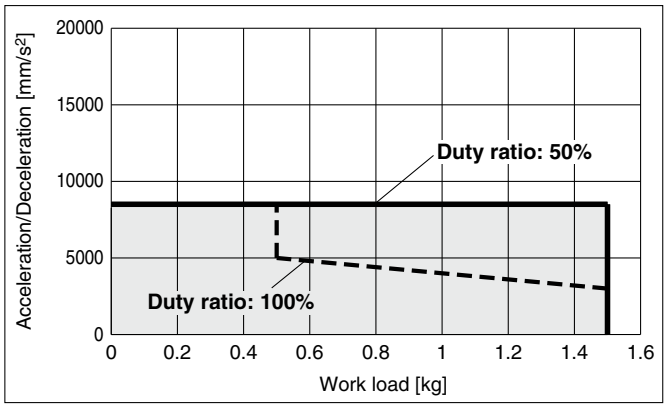
LET80□V8M



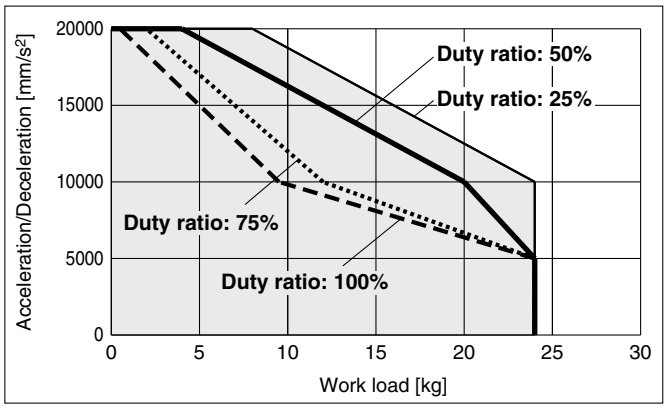
Work Load–Acceleration/Deceleration Graph (Guide)

LET100/Belt Drive: Horizontal

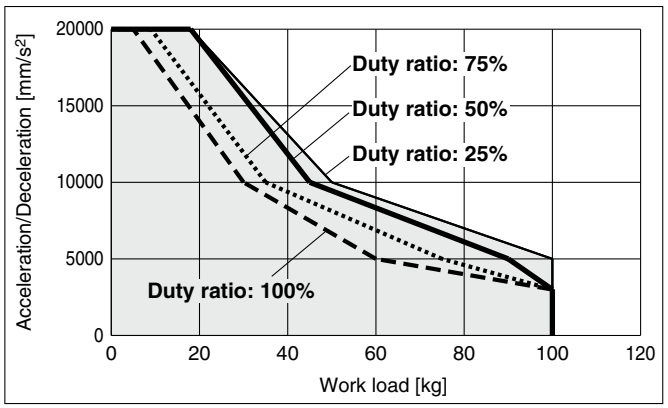
LET100□T9D



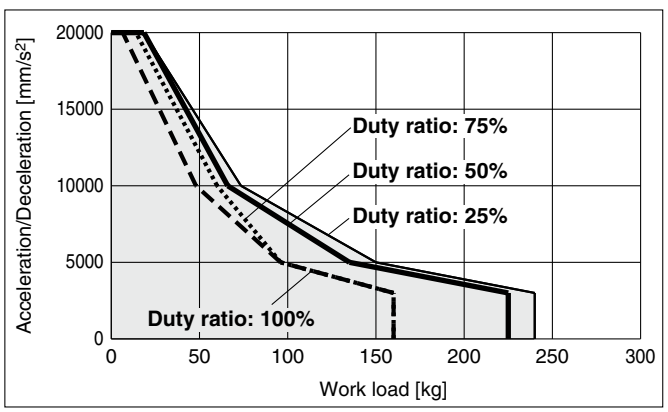
LET100□T9L



LET100□T9M

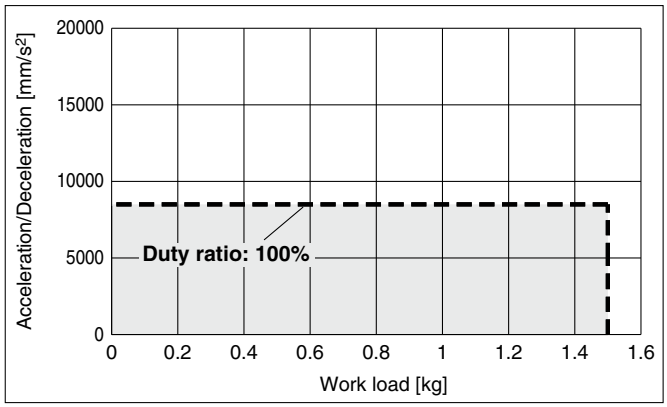


LET100□T9N

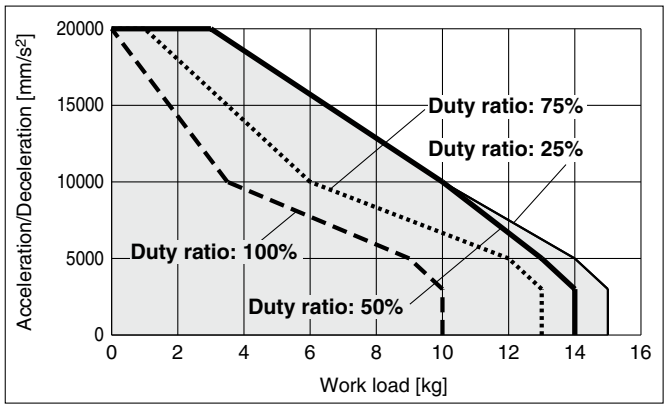


LET100/Belt Drive: Vertical

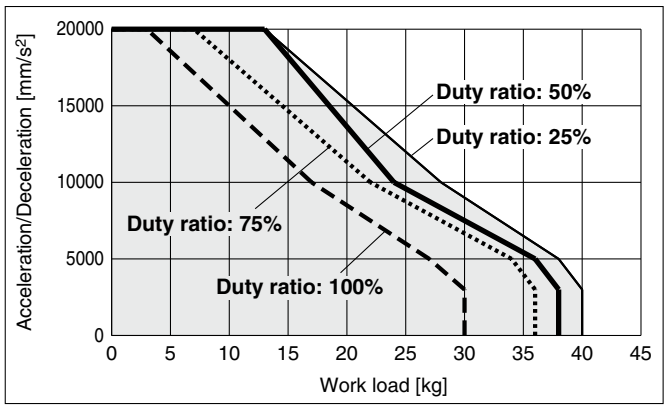
LET100□T9D



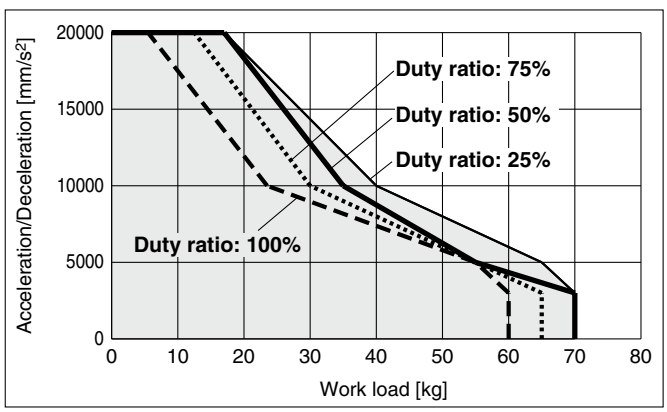
LET100□T9L



LET100□T9M

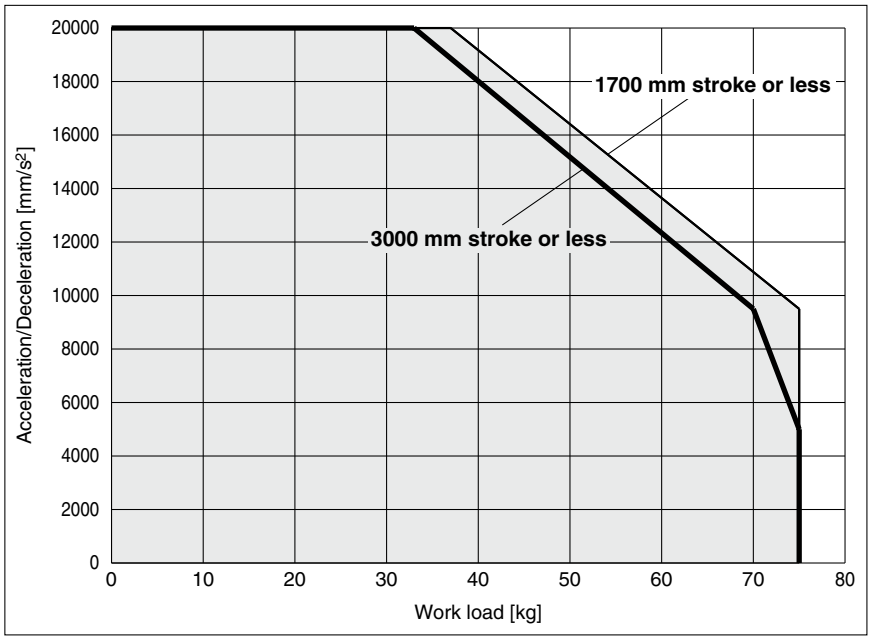


LET100□T9N

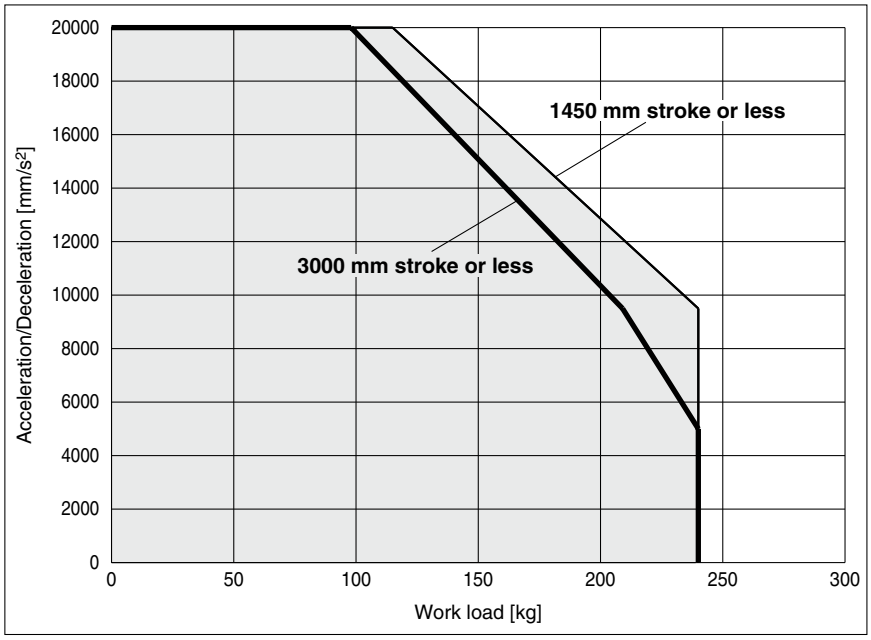


Work Load by Stroke–Acceleration/Deceleration Graph (Guide)

LET80



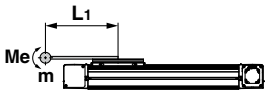
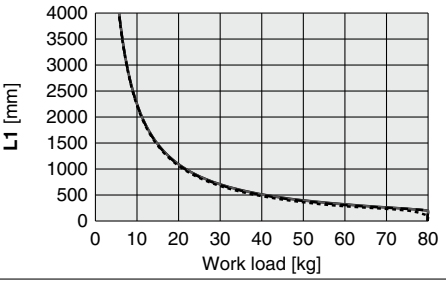
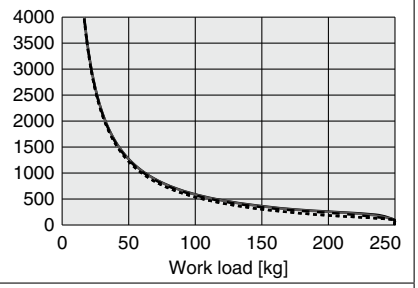
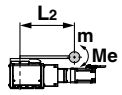
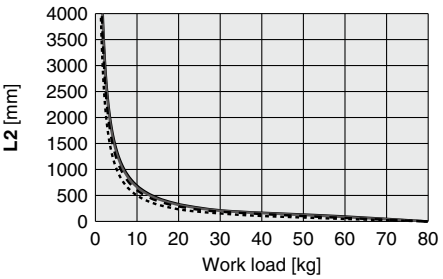
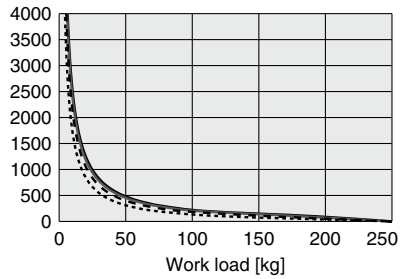
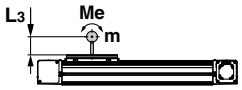
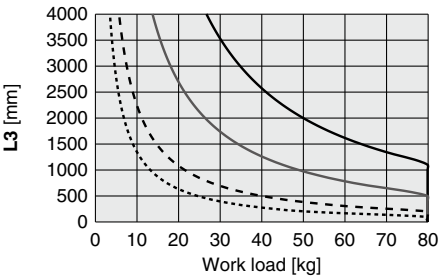
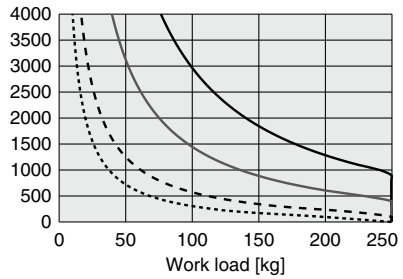
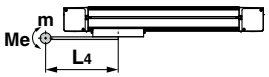
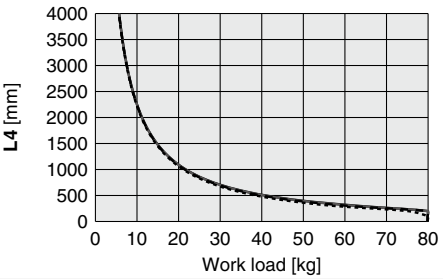
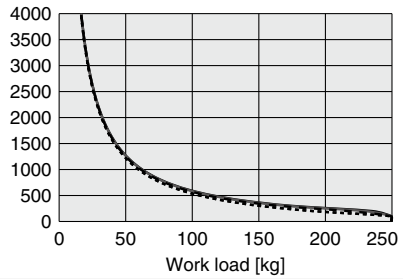
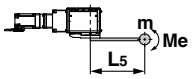
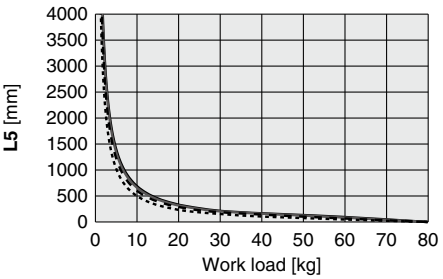
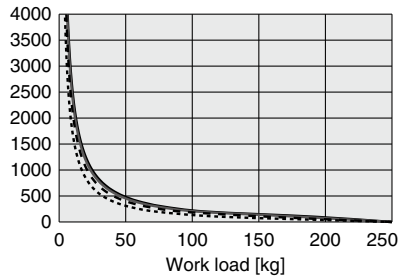
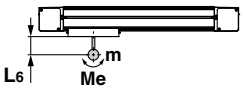
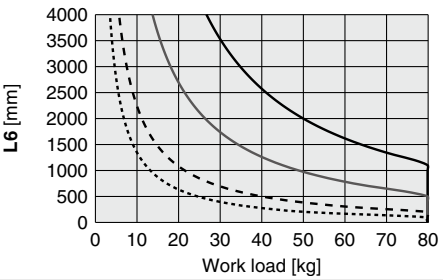
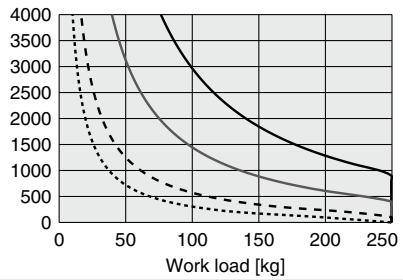
LET100



Dynamic Allowable Moment

* 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: https://www.smcworld.com

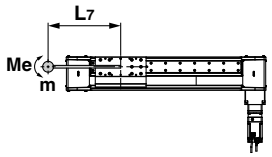
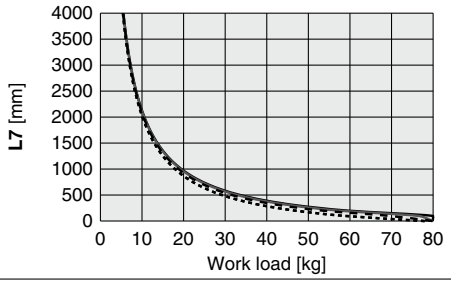
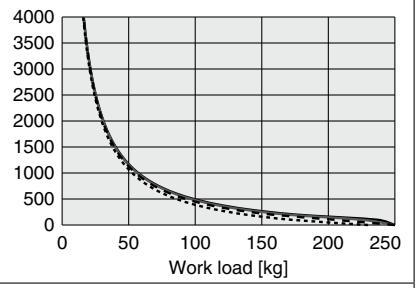
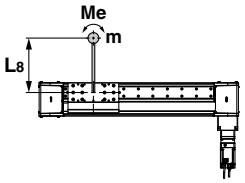
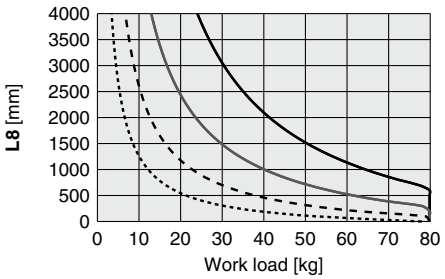
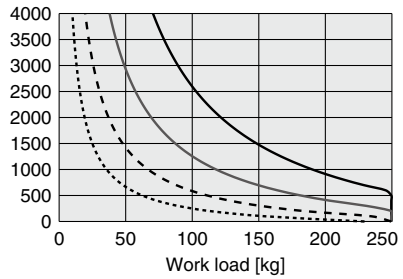
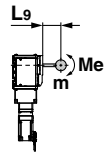
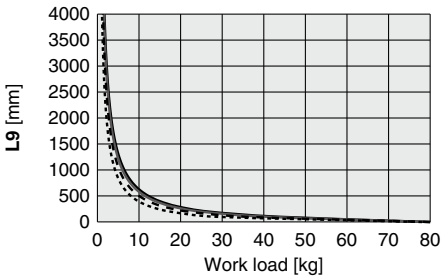
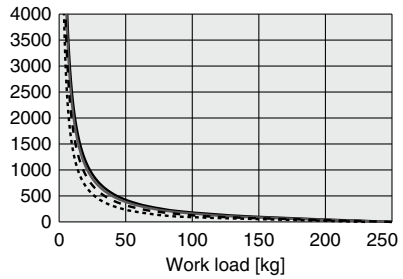
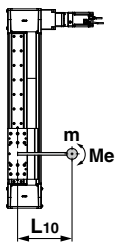
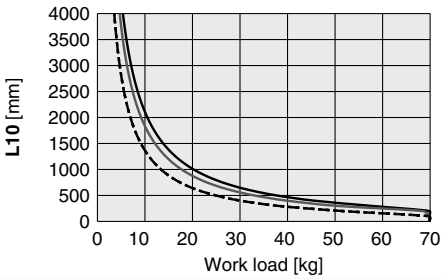
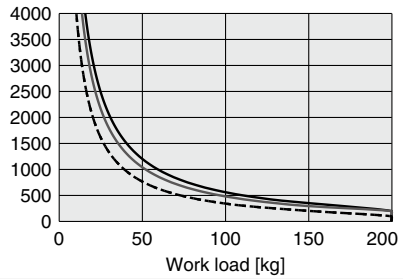
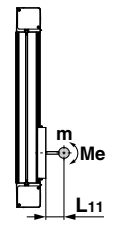
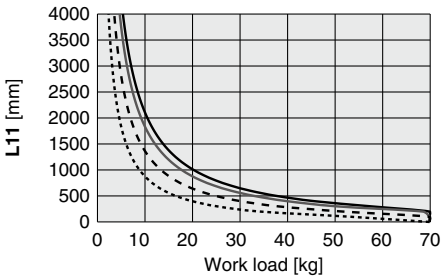
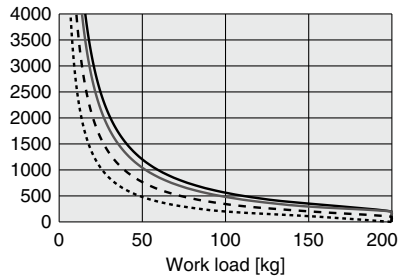
Acceleration/Deceleration ——2500 mm/s² ——5000 mm/s² - - - - 10000 mm/s² ·····20000 mm/s²

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

Dynamic Allowable Moment

* 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: https://www.smcworld.com

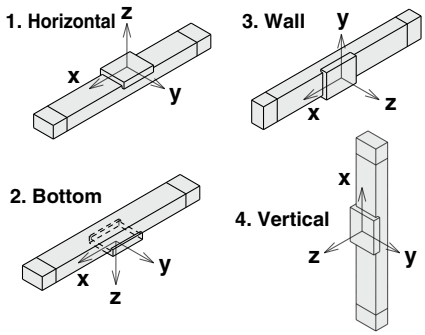
Acceleration/Deceleration ——2500 mm/s² ——5000 mm/s² - - - - 10000 mm/s² ·····20000 mm/s²

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

Calculation of Guide Load Factor

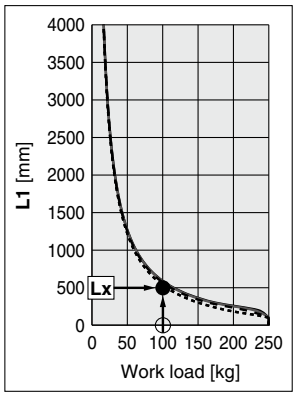
1. Decide operating conditions.
   Model: LET-X11
   Size: 80/100
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph while referencing the model, size, and mounting orientation.
3. Based on the acceleration and work load, find the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   αx = Xc/Lx, **αy = Yc/Ly**, **αz = Zc/Lz**
5. Confirm the total of **αx**, **αy**, and **αz** is 1 or less.
   αx + αy + αz ≤ 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.

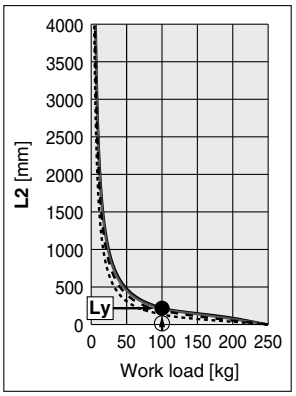
Mounting orientation

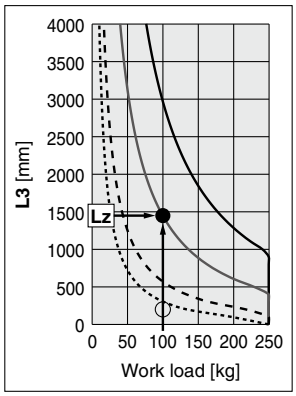


Example

1. Operating conditions
   Model: LET-X11
   Size: 100
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 5000
   Work load [kg]: 100
   Work load center position [mm]: **Xc = 0**, **Yc = 50**, **Zc = 200**
2. Select the graph on the top right side of page 17.
3. **Lx = 500 mm**, **Ly = 200 mm**, **Lz = 1450 mm**
4. The load factor for each direction can be found as follows.
   αx = 0/500 = 0
   αy = 50/200 = 0.25
   αz = 200/1450 = 0.14
5. **αx + αy + αz = 0.39 ≤ 1**







Large Slider Type Belt Drive

LET-X11 Series

CE UKCA RoHS

* For details, refer to page 49.

How to Order

Driver LEC□□ Series

LET 100 FR T9 D – 300 □ – S 2 B2 □ -X11

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

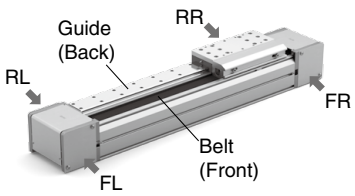
❶ Size

80
100

❷ 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.



❸ 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	80	LECSB2-T8 LECSC2-T8 LECSS2-T8
V8	AC servo motor (Absolute encoder)	400	80	LECYM2-V8 LECYU2-V8
T9	AC servo motor (Absolute encoder)	750	100	LECSB2-T9 LECSC2-T9 LECSS2-T9

❹ 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.

❺ Stroke [mm]

300	300
to	to
3000	3000

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

❻ Motor option

Nil	Without option
B	With lock

❼ 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.)

❽ Cable length [m]*1 *2

Symbol	Cable length	Motor type S4/T8/T9	Motor type 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.

❾ Driver type*1

	Compatible drivers	Power supply voltage [V]
Nil	Without driver	—
A2	LECSA2-S4	200 to 230
B2	LECSB2-T□	200 to 240
C2	LECSC2-T□	200 to 230
S2	LECSS2-T□	200 to 240
M2	LECYM2-V8	200 to 230
U2	LECYU2-V8	200 to 230

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

❿ 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

●: Standard

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

* 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**	**LECSC-T**	**LECSS-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	

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/s²]		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/s²]*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 T8: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB2-T□, LECSS2-T□) Motor type T8: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC2-T□) Motor type V8: Absolute 20-bit encoder (Resolution: 1048576 p/rev)			Motor type T9: 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□)			
	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)

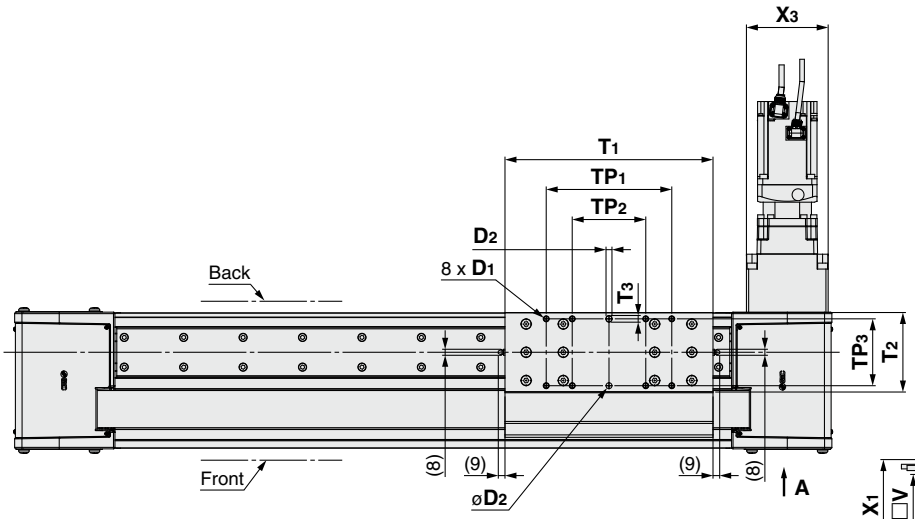
Weight

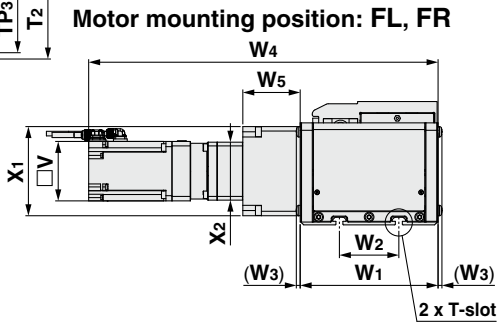
[kg]

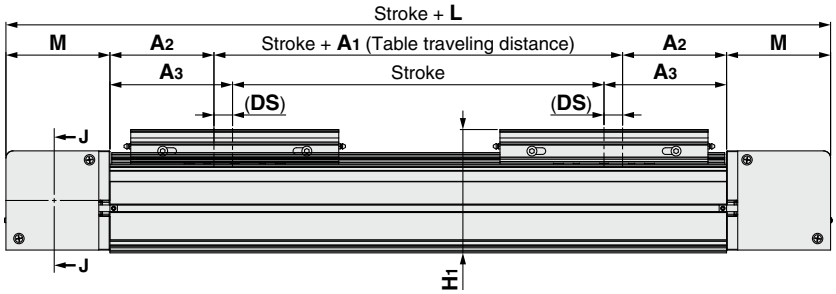
Size	Motor type	Lead	Stroke [mm]													Additional weight with lock [kg]
			300	400	500	600	700	800	900	1000	1200	1500	2000	2500	3000	
80	S4, T8	D	17.3	19.0	20.6	22.1	23.8	25.5	27.1	28.8	32.0	36.9	45.2	53.4	61.5	0.4
		L, M	18.5	20.2	21.9	23.4	25.1	26.7	28.3	30.0	33.3	38.1	46.4	54.6	62.7	
	V8	D	17.2	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	

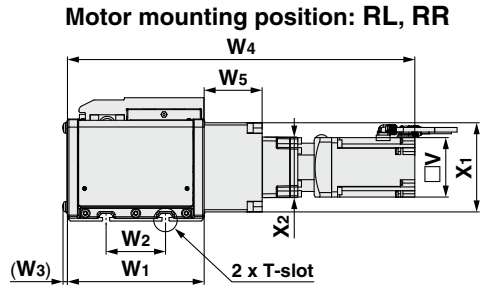
Dimensions: Belt Drive

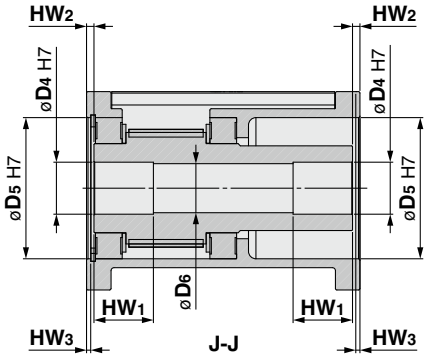
LET80/100-X11

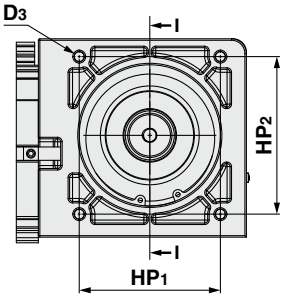




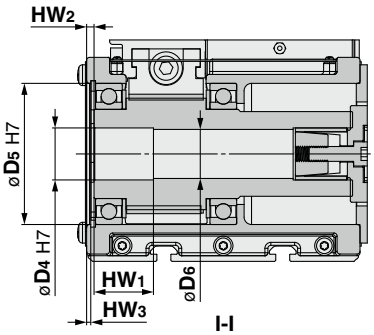


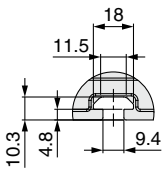






View A
When the side cover is removed





[mm]

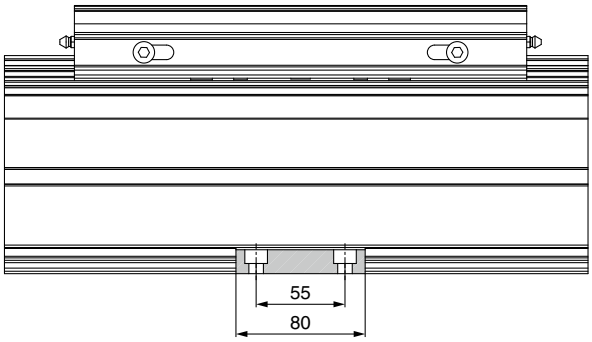
Size	L	A1	A2	A3	DS	M	H1	D1	D2	D3	D4	D5
80	440	44	100	122	22	98	109.4	M5 x 0.8 depth 7.5	6 H7 depth 5	M6 x 1.0 depth 12	25	62
100	600	50	140	165	25	135	166	M8 x 1.25 depth 12	8 H7 depth 7	M8 x 1.25 depth 12	35	95

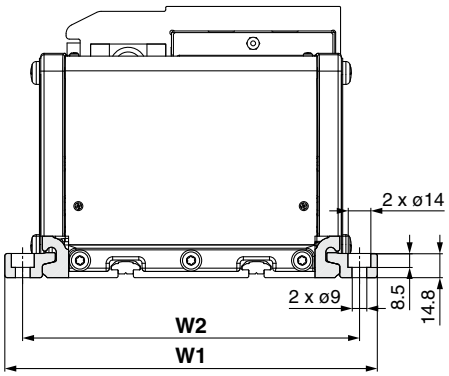
Size	D6	W1	W2	W3	HP1	HP2	HW1	HW2	HW3	TP1	TP2	TP3	T1	T2	T3	V
80	23	119	40	4.7	86	60	35	3	2.4	116	76	55	200	68	7	60
100	33	184	80	6	95	106	40	5	2.8	169	99	90	280	107	9	80

Size	Motor type	Lead	W4		W5	X1	X2	X3
			Without lock	With lock				
80	S4	D	355.5	384.1	53	78	52	97
		L, M	392.5	421.1	73		81	
	T8	D	343.6	380.4	53	78	52	97
		L, M	380.6	417.4	73		81	
	V8	D	343.8	383.8	53	78	52	97
		L, M	380.8	420.8	73		81	
100	T9	D, L	468.3	508.6	78	120	81	110
		M	477.8	518.1	83.5		101	
		N	490.3	530.6				

Side Supports

MY-S50A





Side Support Intervals [mm]

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 is the combined number of left and right supports.

Stroke	Screw size	Max. tightening torque [N·m]	L1 [mm]	Number of side supports: N [pcs.]	
				80	100
Up to 600	M8 x 1.25	12.5 ±10%	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.
Secure using M8 x 1.25 bolts (max. length: plate thickness +9 mm) in the 2 T-slots, tightening with a max. tightening torque of 12.5 ±10% N·m.
Recommended nut spacing: LET80 (170 mm), LET100 (80 mm)
When using vertically, securing with side supports is recommended as it is difficult to secure with the nuts.

T-nut (12 pcs.) **LET – T 80 – 08**
❶ ❷

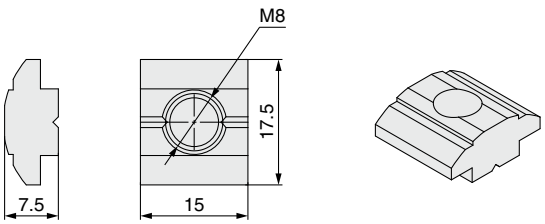
❶ Size

80

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

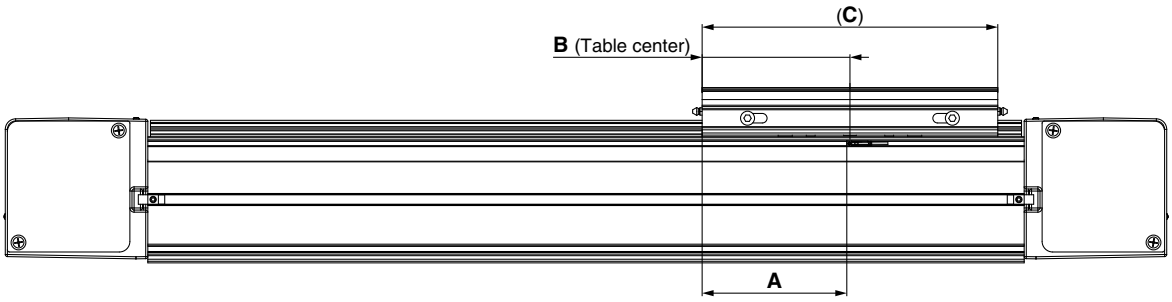
❷ Thread size

Symbol	Thread
08	M8



LET-X11 Series
Auto Switch Mounting

Auto Switch Mounting Position



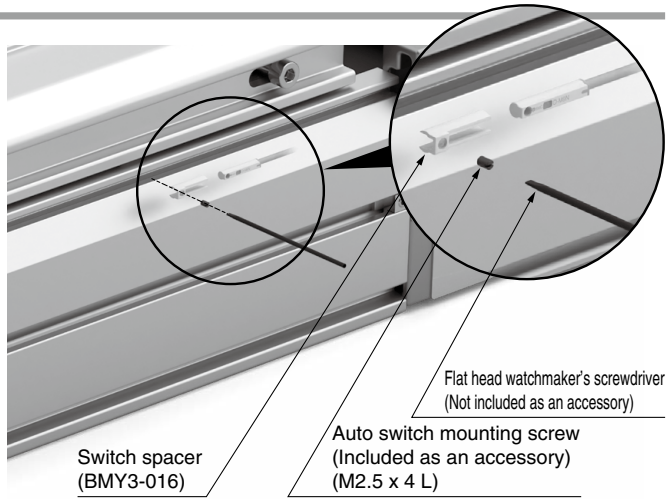
[mm]

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

∗ The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations (as much as ±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

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.

Grommet

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

⚠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

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					

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 [mm²]	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

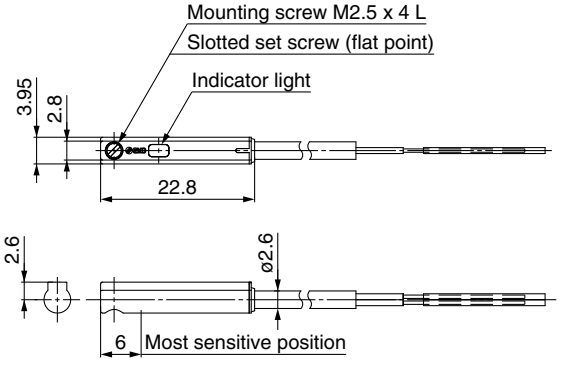
[g]

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

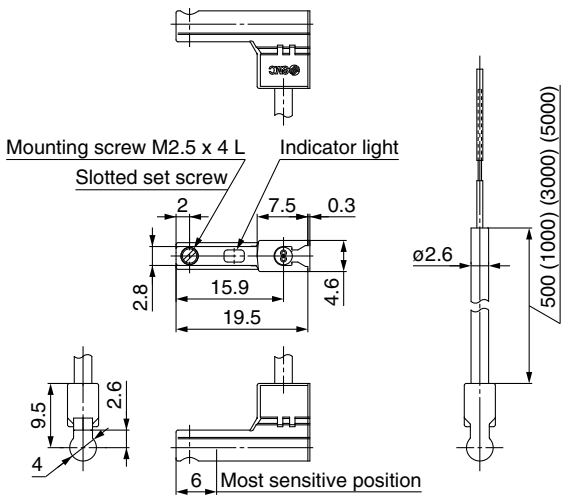
Dimensions

[mm]

D-M9□



D-M9□V

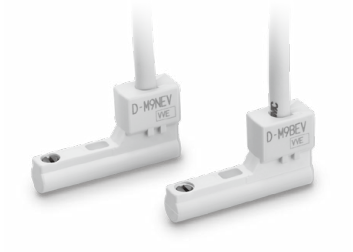


Normally Closed Solid State Auto Switch Direct Mounting Type
D-M9NE(V)/D-M9PE(V)/D-M9BE(V)

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

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

PLC: Programmable Logic Controller

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 [mm²]	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]

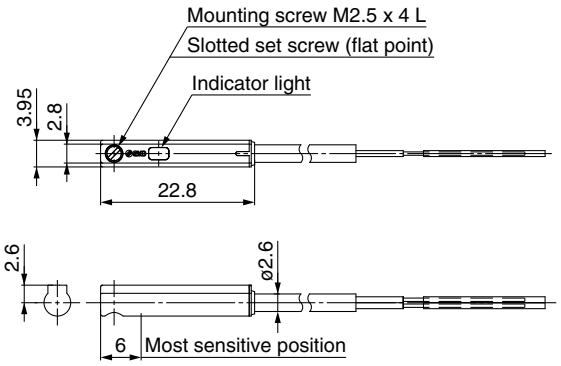
Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)∗1	14		13
	3 m (**L**)	41		38
	5 m (**Z**)∗1	68		63

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

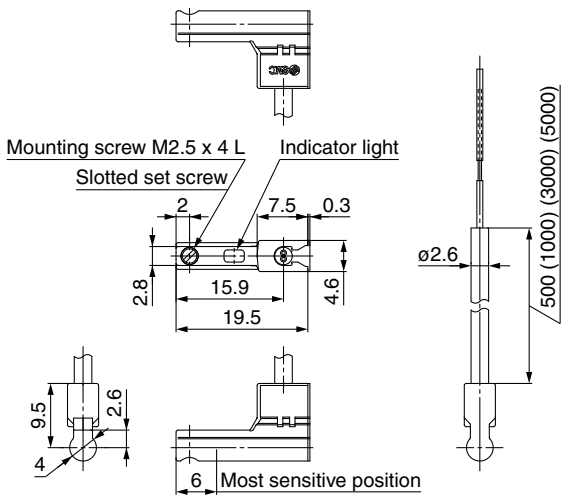
Dimensions

[mm]

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.

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.

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					

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 [mm²]	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

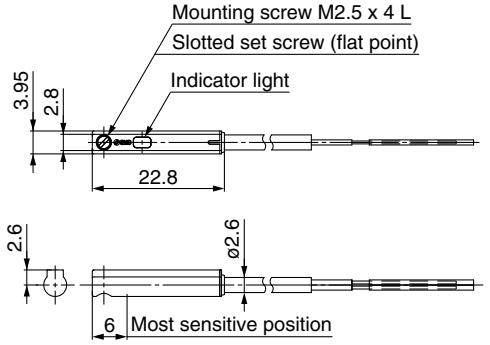
[g]

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

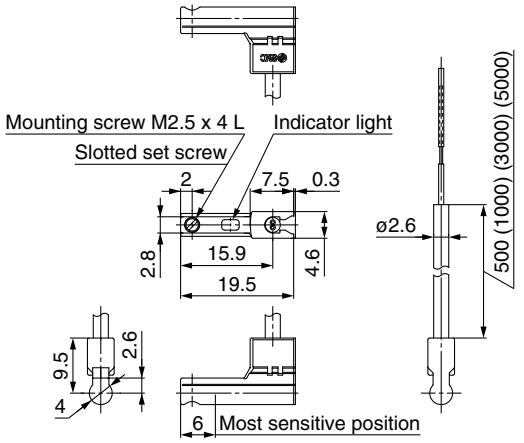
Dimensions

[mm]

D-M9□W



D-M9□WV



SMC

LET-X11 Series
Specific Product Precautions 1

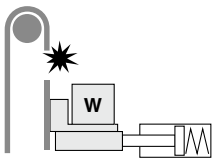
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

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.

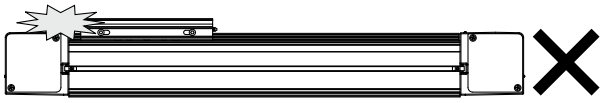
If you use an actuator without a lock, there is no holding force when the power or servo is turned off, so the workpiece may drop.

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: https://www.smcworld.com

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.

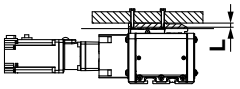
Side support mounting

∗ 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 80	Mounting quantity 100
Up to 600	M8 x 1.25	12.5 ±10%	15	6	8
Up to 900				8	10
Up to 1200				10	12
Up to 2000				12	14
Up to 3000				14	16

∗ 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·m]	L (Max. screw-in depth) [mm]
80	M5 x 0.8	3 ±10%	9
100	M8 x 1.25	12.5 ±10%	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.

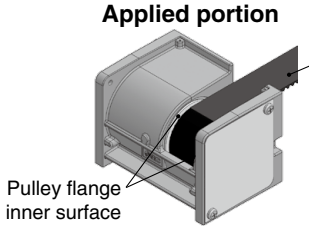
⚠Caution

13. Depending on the acceleration and stroke, this actuator may make noise when the belt comes into contact with the pulley flange.

Perform one of the following.

a. Decrease acceleration.
b. Apply grease to the inner surface of the pulley flange (belt contact surface).

Applied portion



Applied portion	Order no.
Pulley flange inner surface	GR-S-010 (10 g)

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

* For details, refer to page 49.

* Excludes the LECYM/LECYU

RoHS

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/LECSC-T Series

SSCNETⅢ/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

AC Servo Motor Driver
Incremental Type
LECSA Series **(Pulse Input Type/Positioning Type)**

∗ For details, refer to page 49.

∗ Only the LECSA and LECS□-T are compliant.

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

How to Order

For LECSA

LECS A 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/LECSC-T/LECSS-T

LECS B 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 LECSC2-T)

LECSB-T LECSC-T LECSS-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.)

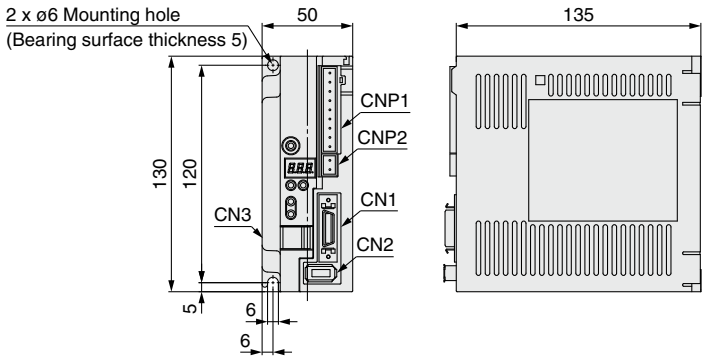
Compatible motor type

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

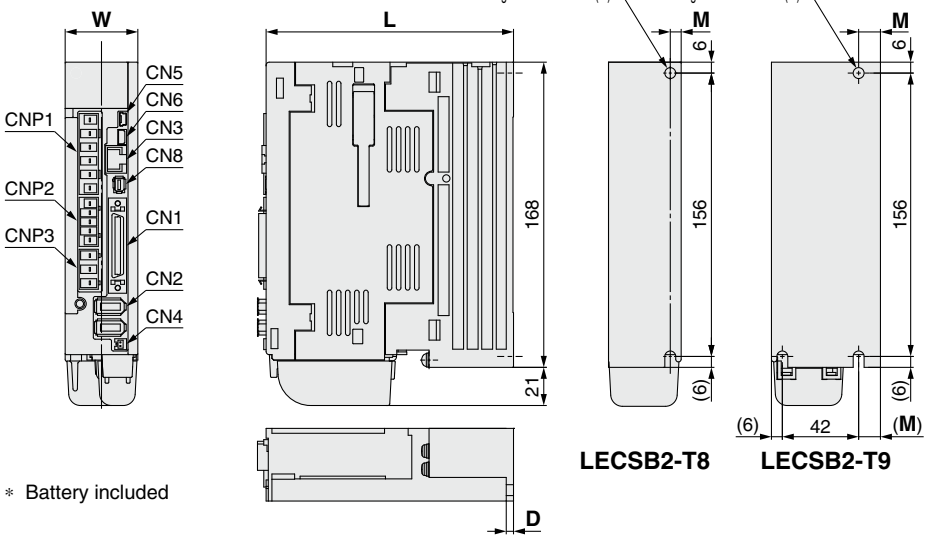
LECSA□



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□



LECSB2-T8 LECSB2-T9

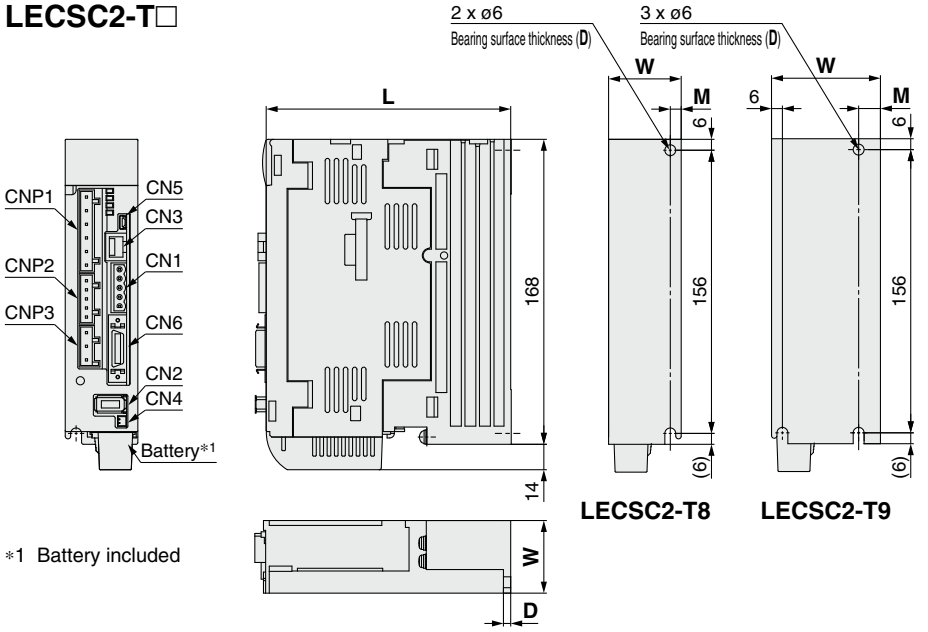
∗ Battery included

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

LECSC2-T□



LECSC2-T8 LECSC2-T9

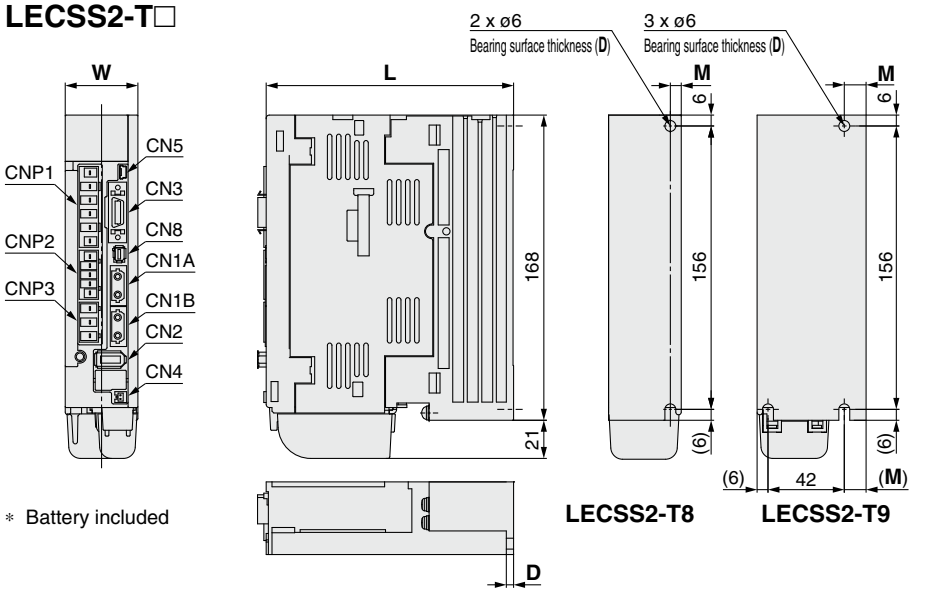
∗1 Battery included

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
LECSC2-T8	40	170	5	6
LECSC2-T9	60	185	6	12

LECSS2-T□



LECSS2-T8 LECSS2-T9

∗ Battery included

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

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.

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

Specifications

LECSC-T Series

Model			LECSC2-T8	LECSC2-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.

LECSS-T Series

Model		LECSS2-T8	LECSS2-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 LECSS-T operation manual for details.

Options

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

LE − CS M − S 5 A

Motor type

S	AC servo motor

Cable description

M	Motor cable
B	Lock cable
E	Encoder cable

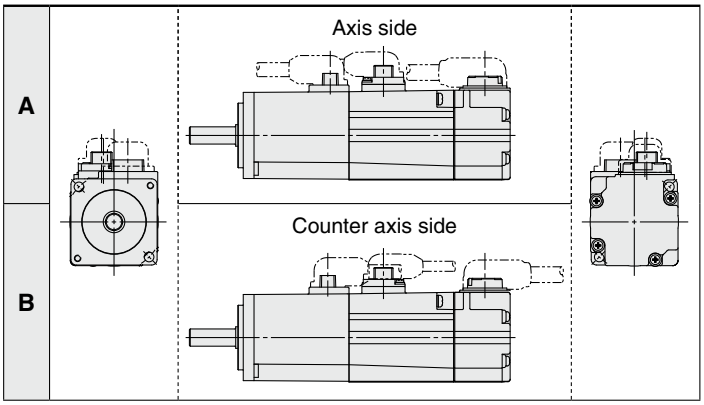
Cable type

S	Standard cable
R	Robotic cable

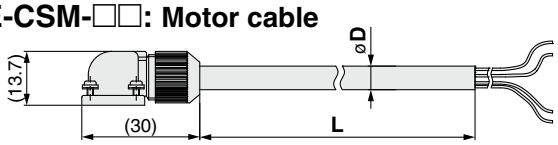
Cable length (L) [m]

2	2
5	5
A	10

Direction of connector



LE-CSM-□□: Motor cable



Product no.	ø D
LE-CSM-S□A	6.2
LE-CSM-S□B	
LE-CSM-R□A	5.7
LE-CSM-R□B	

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

LE-CSB-□□: Lock cable*1

Product no.	ø D
LE-CSB-S□A	4.7
LE-CSB-S□B	
LE-CSB-R□A	4.5
LE-CSB-R□B	

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

LE-CSE-□□: Encoder cable

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

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

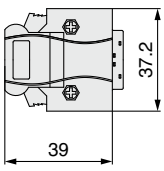
I/O connector (Without cable, Connector only)

LE − CSN A

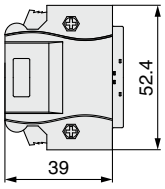
Driver type

A	**LECSA□, LECSC2-T□**
B	**LECSB2-T□**
S	**LECSS2-T□**

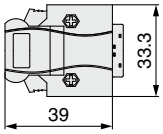
LE-CSNA



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 (LECSS2-T□)

LE − CSS − 1

Motor type

S	AC servo motor

Cable description

S	SSCNET Ⅲ optical cable

Cable length

L	0.15 m
K	0.3 m
J	0.5 m
1	1 m
3	3 m

∗ LE-CSS-□ is MR-J3BUS□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 − CSN A − 1

Driver type

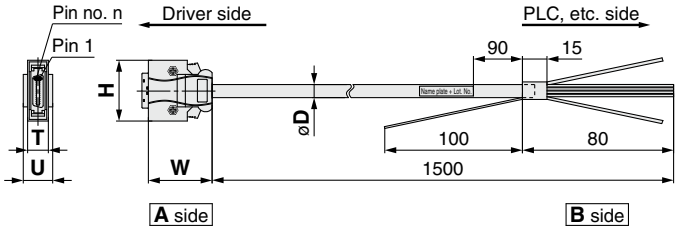
A	**LECSA□, LECSC2-T□**
B	**LECSB2-T□**
S	**LECSS2-T□**

Cable length (L) [m]

1	1.5

Weight

Product no.	Weight [g]
LEC-CSNA-1	303
LEC-CSNB-1	472
LEC-CSNS-1	221



∗ 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
A side	1	1	Orange	▬	Red
	2			▬	Black
	3	2	Light gray	▬	Red
	4			▬	Black
	5	3	White	▬	Red
	6			▬	Black
	7	4	Yellow	▬	Red
	8			▬	Black
	9	5	Pink	▬	Red
	10			▬	Black
	11	6	Orange	▬ ▬	Red
	12			▬ ▬	Black
	13	7	Light gray	▬ ▬	Red
	14			▬ ▬	Black
	15	8	White	▬ ▬	Red
	16			▬ ▬	Black
	17	9	Yellow	▬ ▬	Red
	18			▬ ▬	Black

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

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

Options

Regeneration option (LECS□ common)

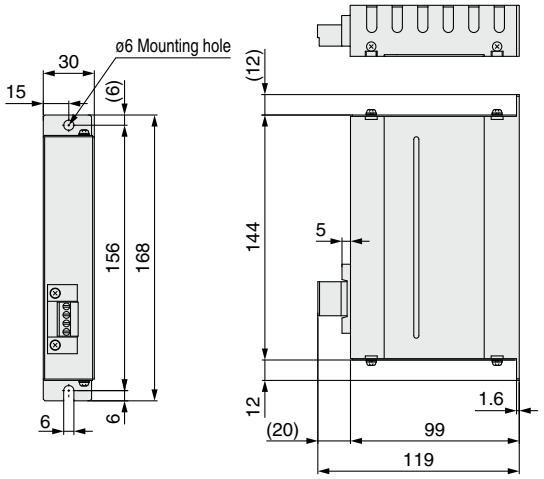
LEC − MR − RB − 12

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

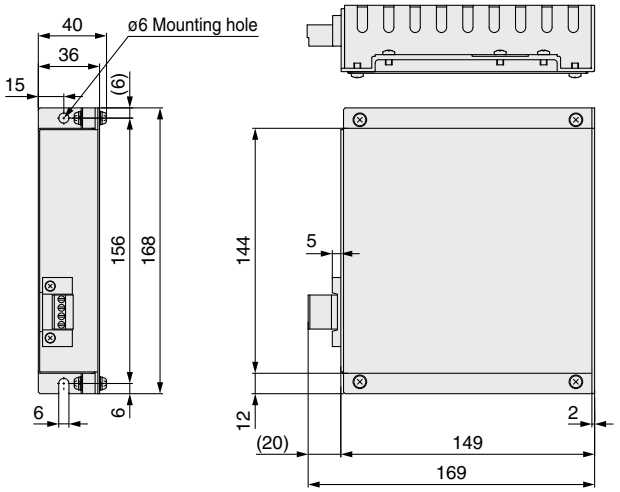


Weight

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

∗ MR-RB032 manufactured by Mitsubishi Electric Corporation

LEC-MR-RB-12

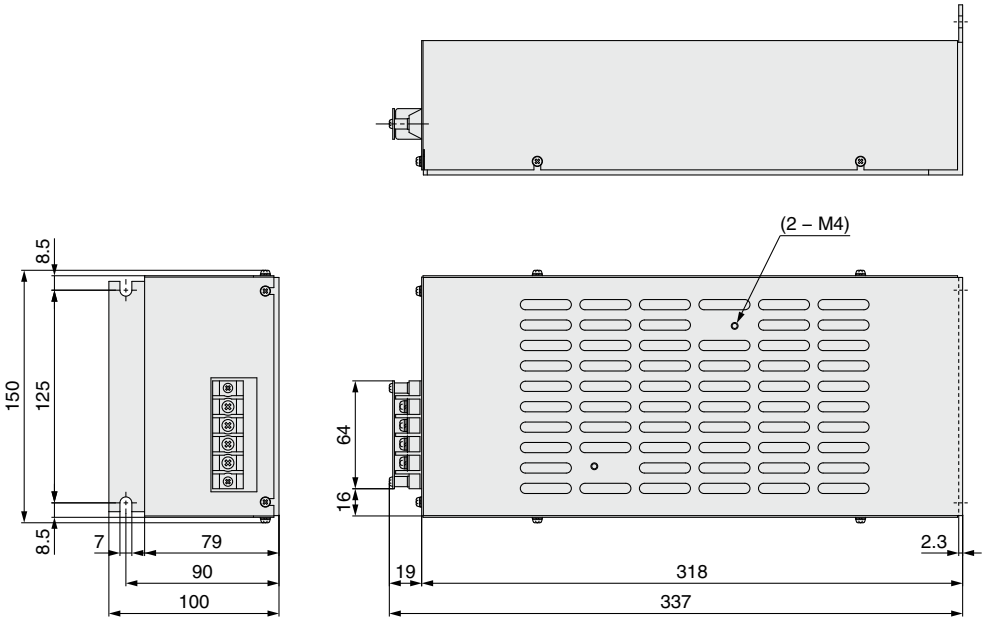


Weight

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

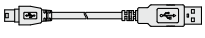
∗ MR-RB32 manufactured by Mitsubishi Electric Corporation

Options

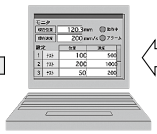



LECSA **LECSB2-T□** **LECSC2-T□** **LECSS2-T□**

Drivers



USB cable



PC

Setup software (MR Configurator2™)

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□	—	○

Options

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

LEC−MR−J3USB

∗ MR-J3USBCBL3M manufactured by Mitsubishi Electric Corporation

Weight: 140 g

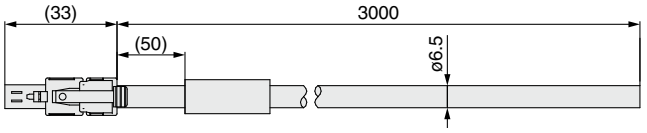
Cable for connecting the PC and driver when using the setup software (MR Configurator2™)
Do not use any cable other than this cable.

STO cable (3 m)
(Only for LECSB2-T□ and LECSS2-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.



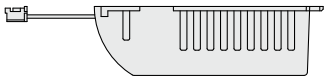
Weight: 500 g

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.

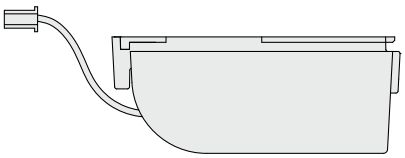


Weight: 30 g

∗ 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□	—	○
LECSC□-T□	○	—
LECSS□-T□	—	○

MECHATROLINK Compatible

AC Servo Motor Driver
Absolute Type
LECYM/LECYU Series

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

LECYM LECYU

CE UKCA RoHS

∗ 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

∗ **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.**

Compatible motor type

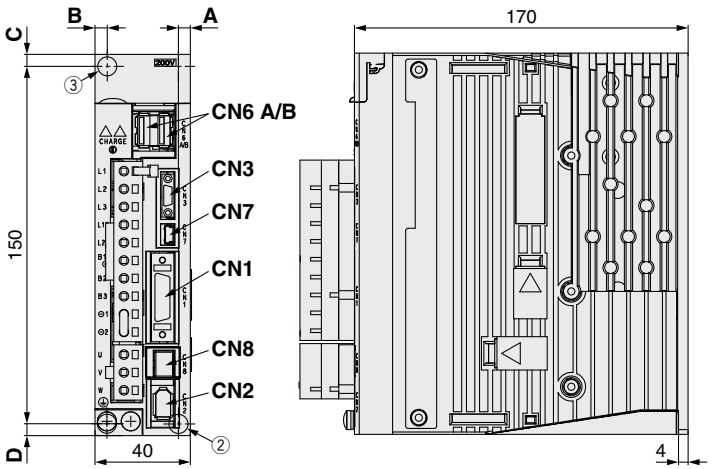
Symbol	Type	Capacity	Encoder
V8	AC servo motor (V8∗1)	400 W	Absolute

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

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

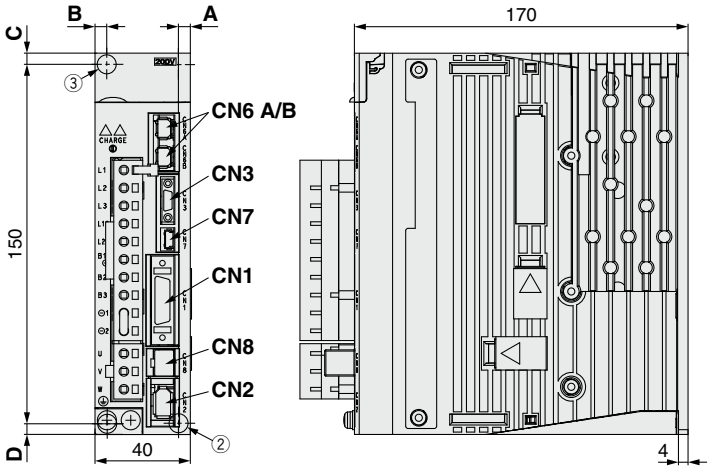
∗1 Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions A	B	C	D	Mounting hole
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 A	B	C	D	Mounting hole
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.
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)
	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] · 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.
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)
	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-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.

Options

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

LE − CY M − S 5 A − 7

Motor type

Y	AC servo motor

Cable description

M	Motor cable
B	Motor cable for lock option
E	Encoder cable (With battery case)

Cable type

S	Standard cable
R	Robotic cable

Cable length (L) [m]

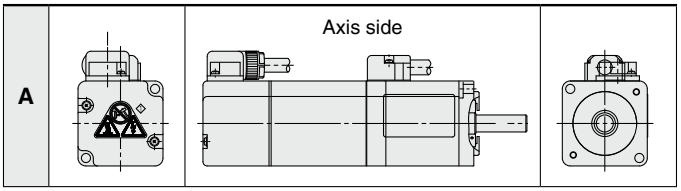
3	3
5	5
A	10
C	20

Motor capacity

7	400 W

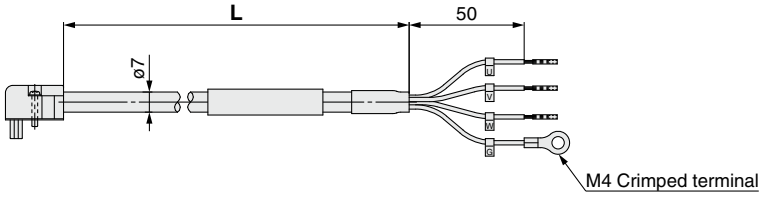
∗ For encoder cable, the suffix "−□" (Motor capacity) is not necessary.

Direction of connector

A	

∗ The cable entry direction is axis side only.

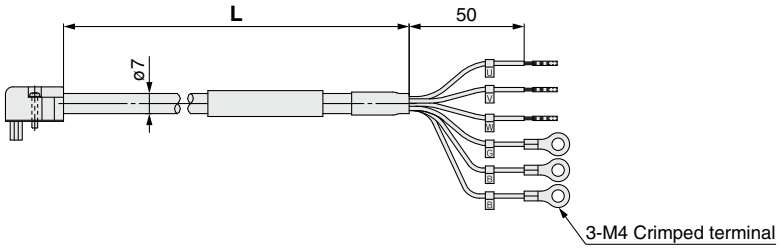
LE-CYM-□□A-□: Motor cable



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	

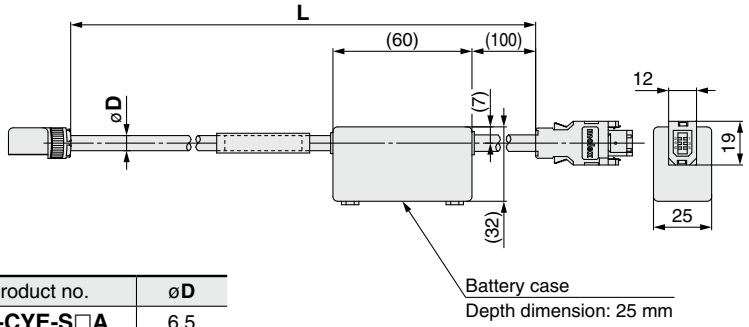
LE-CYB-□□A-□: Motor cable for lock option



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



Product no.	ø**D**
LE-CYE-S□A	6.5
LE-CYE-R□A	6.8

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

∗ 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

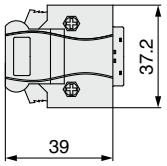
I/O connector (Without cable, Connector only)

LE − CYN A

Driver type

A	**For LECYM2, LECYU2**

LE-CYNA



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

LEC − CSN A − 1

Driver type

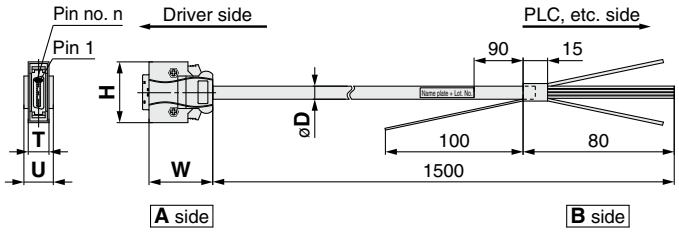
A	**For LECYM2, LECYU2**

Cable length (L) [m]

1	1.5

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
A side	1	1	Orange	▬	Red
	2			▬	Black
	3	2	Light gray	▬	Red
	4			▬	Black
	5	3	White	▬	Red
	6			▬	Black
	7	4	Yellow	▬	Red
	8			▬	Black
	9	5	Pink	▬	Red
	10			▬	Black

Connector pin no.		Pair no. of wire	Insulation color	Dot mark	Dot color
A side	11	6	Orange	▬ ▬	Red
	12			▬ ▬	Black
	13	7	Light gray	▬ ▬	Red
	14			▬ ▬	Black
	15	8	White	▬ ▬	Red
	16			▬ ▬	Black
	17	9	Yellow	▬ ▬	Red
	18			▬ ▬	Black
	19	10	Pink	▬ ▬	Red
	20			▬ ▬	Black

Connector pin no.		Pair no. of wire	Insulation color	Dot mark	Dot color
A side	21	11	Orange	▬ ▬ ▬	Red
	22			▬ ▬ ▬	Black
	23	12	Light gray	▬ ▬ ▬	Red
	24			▬ ▬ ▬	Black
	25	13	White	▬ ▬ ▬	Red
	26			▬ ▬ ▬	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

Options

MECHATROLINK cable type

LEC−CY M − 1

Motor type

Y	AC servo motor

Cable description

M	MECHATROLINK-Ⅱ cable
U	MECHATROLINK-Ⅲ cable

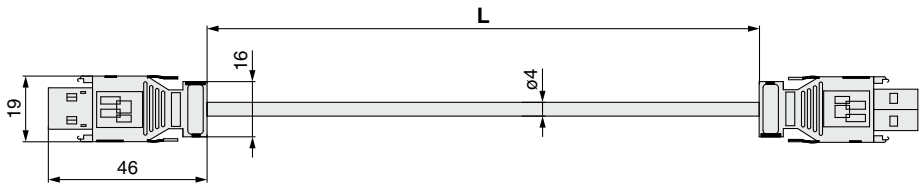
Cable length (L)

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.

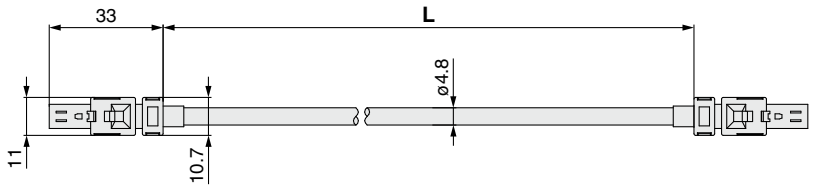
MECHATROLINK-Ⅱ cable



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



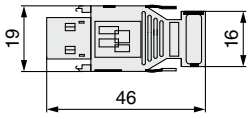
Weight

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)	—

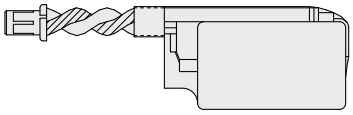
∗1 Windows, Windows Vista®, Windows® 7, Windows® 8.1, Windows® 10, and Windows® 11 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
∗2 On some PCs, this software may not run properly.
∗3 Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®
∗4 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

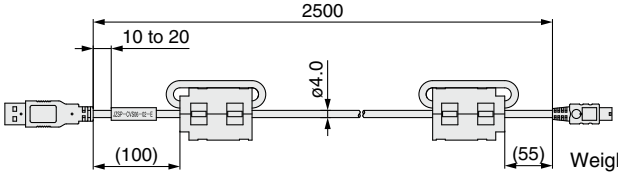
∗ The JZSP-BA01 is a single battery that uses a lithium metal battery ER3V.
When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations 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.

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.



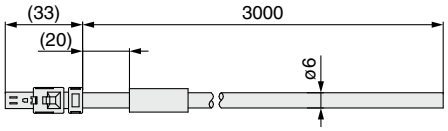
Weight: 150 g

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: https://www.smcworld.com

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 fireproof 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.

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: https://www.smcworld.com

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

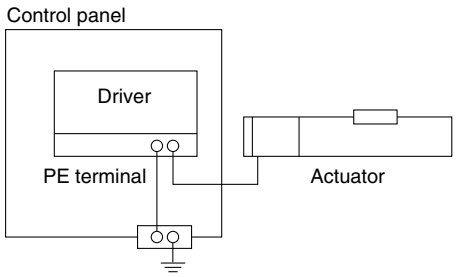
1. The driver will be damaged if a commercial power supply (100/200 V) is added to the driver's servo motor power (U, V, and W). Be sure to check wiring for mistakes when the power supply is turned on.

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 "×": Not compliant

Compatible motor	Series	CE UKCA	c UL us LISTED	
			Compliance	Certification No. (File No.)
AC servo motor	**LECSA**	○	○	E466261
	LECSB-T	○	○	E466261
	LECSC-T	○	○	E466261
	LECSS-T	○	○	E466261
	LECYM	○	×	—
	LECYU	○	×	—

■ Actuators "○": Compliant

Compatible motor	Series	CE UKCA	c RU 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			**LECSC-T**∗1		
		CE UKCA	c RU us		CE UKCA	c RU us		CE UKCA	c RU us	
			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	—

Compatible motor	Series	**LECSS-T**∗1			**LECYM-V**			**LECYU-V**		
		CE UKCA	c RU us		CE UKCA	c RU us		CE UKCA	c RU us	
			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	—

∗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.

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