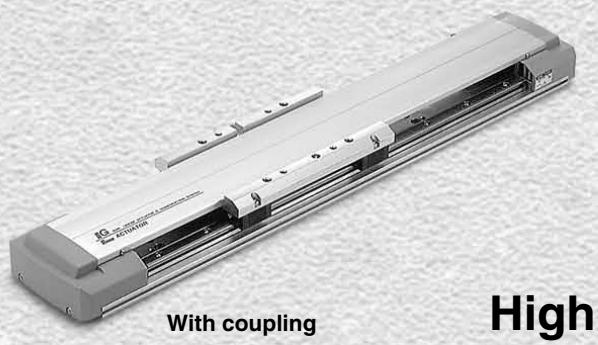


With coupling

Low Profile Single Axis Electric Actuator

Series LG1H

High Rigidity Direct Acting Guide

Series	Motor type	Guide type	Mounting orientation	Motor/Screw connection	Model	Lead screw (lead) mm		Page
						Ground ball screw	Rolled ball screw	
LG1H	Standard motor	High rigidity direct acting guide	Horizontal	With coupling	LG1H21	10 20	10 20	Page 48 to

Part Number Designations

LG1 H 21 S2 P A – 100 – F R 2 A1 □ – □

Guide type

H	High rigidity direct acting guide

Series

21	With coupling

Motor type

S2	AC servo motor (Incremental encoder) 100 W
S6	AC servo motor (Absolute encoder) 100 W

Lead screw type

P	Ground
N	Rolled

Lead screw lead

A	10 mm
C	20 mm

Stroke (mm)

Cable entry direction

F	Axial

Cable type

S	Standard cable
R	Robotic cable (flexible cable)

Cable length

2	2 m
5	5 m
A	10 m

Driver type

Nil	Without driver
A1	Pulse input type (Incremental encoder) 100 V
A2	Pulse input type (Incremental encoder) 200 V
B1	Pulse input type (Absolute encoder) 100 V
B2	Pulse input type (Absolute encoder) 200 V

IO connector

Nil	None
H	With IO connector

Photo micro switch

Nil	None
1	NPN 1pc.
2	NPN 2pcs.
3	PNP 1pc.
4	PNP 2pcs.

The tables above show the definition for each symbol only and cannot be used for actual model selection.

Standard Motor/ Horizontal Mount With Coupling

Series LG1H21

Motor Output 100 W | High Rigidity Direct Acting Guide | Ground Ball Screw ø15 mm/10 mm lead

How to Order

LG1H21 S2 PA – 300 – F R 2 A1 □ – □

Motor type

S2	AC servo motor (Incremental encoder) 100 W
S6	AC servo motor (Absolute encoder) 100 W

Stroke (mm)
Refer to the standard stroke.

Cable type

S	Standard cable
R	Robotic cable (flexible cable)

Cable length

2	2 m
5	5 m
A	10 m

Driver type

Nil	Without driver
A1	Pulse input type (Incremental encoder) 100 V
A2	Pulse input type (Incremental encoder) 200 V
B1	Pulse input type (Absolute encoder) 100 V
B2	Pulse input type (Absolute encoder) 200 V

IO connector

Nil	None
H	With IO connector

Photo micro switch

Nil	None
1	NPN 1pc.
2	NPN 2pcs.
3	PNP 1pc.
4	PNP 2pcs.

Specifications

Standard stroke (mm)		100	200	300	400
Performance	Body weight (kg)	5.3	6.1	6.9	7.7
	Operating temperature range (˚C)	5 to 40 (No condensation)			
	Work load (kg)	30			
	Maximum speed (mm/s)	500			
	Positioning repeatability (mm)	±0.02			
Main parts	Motor	AC servo motor (100 W)			
	Encoder	Incremental system/Absolute type			
	Lead screw	Ground ball screw ø15 mm, 10 mm lead			
	Guide	High rigidity direct acting guide			
	Motor/Screw connection	With coupling			
Driver	Model	LECS□□-□ (Refer to page 97 for details.)			

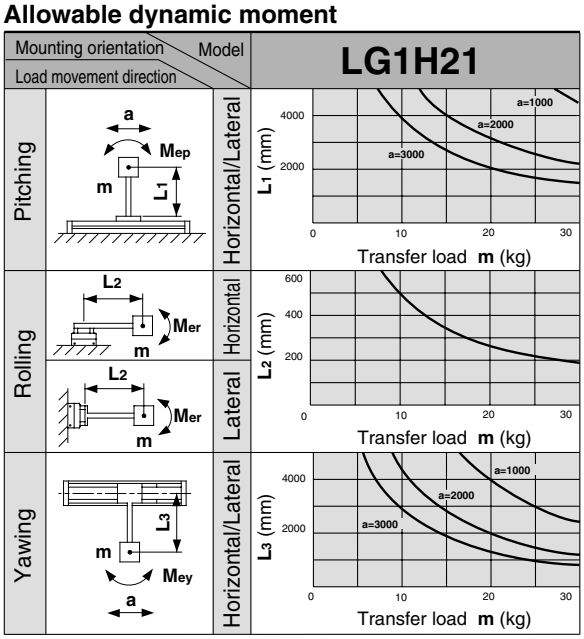
Allowable Moment (N·m)

Allowable static moment

Pitching	142
Rolling	79
Yawing	150

m : Transfer load (kg)
a : Work piece acceleration (mm/s²)
Me: Dynamic moment
L : Overhang to work piece center of gravity (mm)

Allowable dynamic moment



Refer to page 58 for deflection data.

Investigation of the regeneration option

Depending on the conditions (speed, addition-subtraction speed, down time, load, etc.), the regeneration option may be required.
The results of consideration in each case of maximum load or half load for the product specification are below.
Please consult SMC when considering the necessity of the regeneration option.

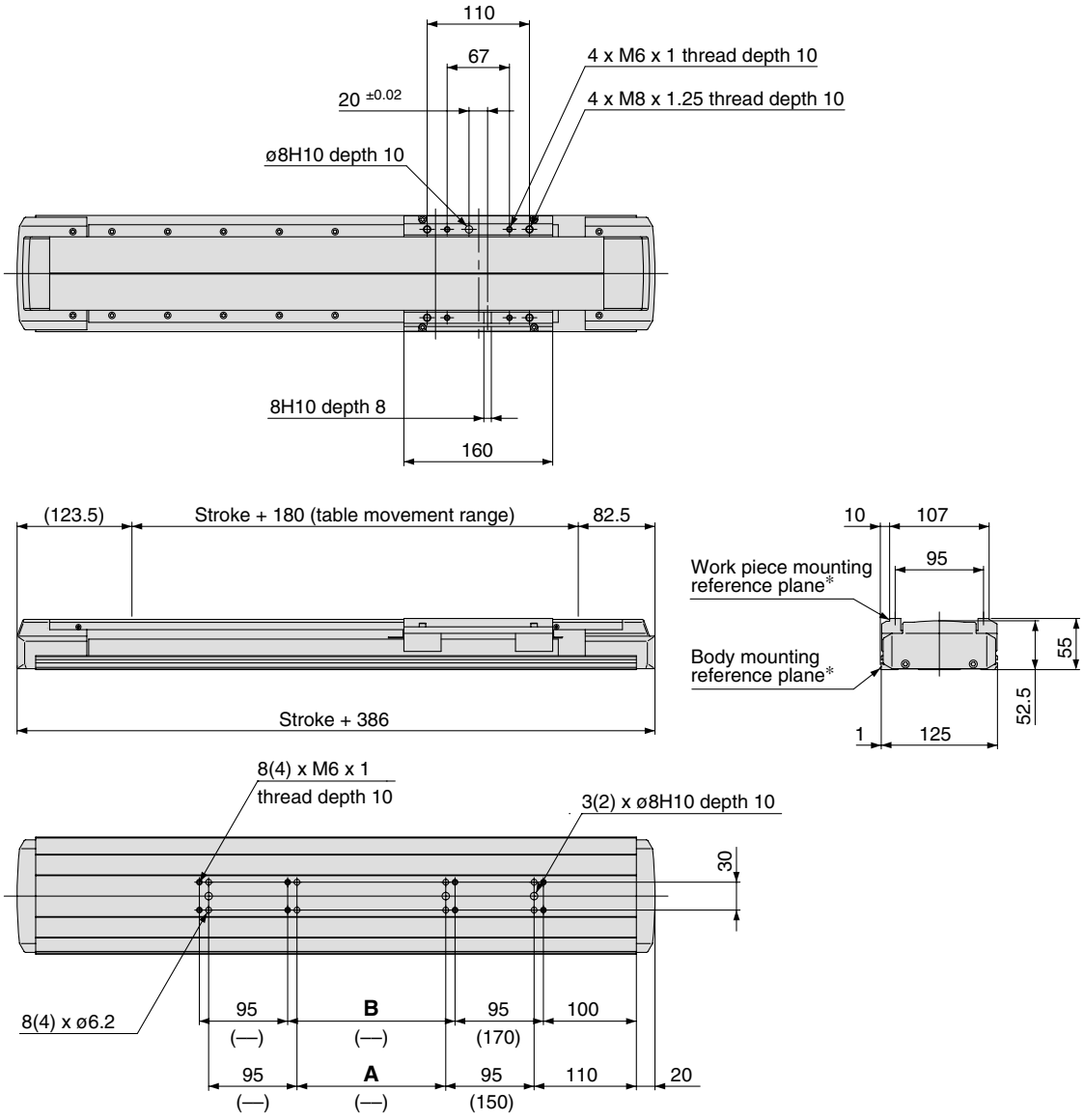
Maximum load

Driver type	Regeneration option model
A1	Not required.
A2	Not required.
B1	Not required.
B2	Not required.

Half load

Driver type	Regeneration option model
A1	Not required.
A2	Not required.
B1	Not required.
B2	Not required.

Dimensions/LG1H21□PA



Model	Stroke	A	B
LG1H21□PA-100-F□*	100	—	—
LG1H21□PA-200-F□	200	60	80
LG1H21□PA-300-F□	300	160	180
LG1H21□PA-400-F□	400	260	280

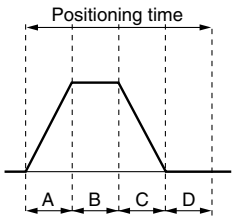
* Dimenstions inside ( ) are for a 100 mm stroke.

* The body mounting reference plane and work piece mounting reference plane should be used as standards when mounting onto equipment. Refer to page 57 for mounting.

Positioning Time Guide

		Positioning time (sec.)				
Positioning distance (mm)		1	10	100	200	400
Speed (mm/s)	10	0.5	1.4	10.4	20.4	40.4
	100	0.5	0.6	1.5	2.5	4.5
	250	0.5	0.6	0.9	1.3	2.1
	500	0.5	0.6	0.8	1.0	1.4

* Values will vary slightly depending on the operating conditions.



A: Acceleration time
B: Constant velocity time
C: Deceleration time
D: Resting time (0.4 sec.)
Maximum acceleration: 3000 mm/s^2

Standard Motor/ Horizontal Mount With Coupling

Series LG1H21

Motor Output 100 W | High Rigidity Direct Acting Guide | Ground Ball Screw ø15 mm/20 mm lead

How to Order

LG1H21 S2 PC – 500 – F R 2 A1 □ – □

Motor type

S2	AC servo motor (Incremental encoder) 100 W
S6	AC servo motor (Absolute encoder) 100 W

Stroke (mm)
Refer to the standard stroke.

Cable type

S	Standard cable
R	Robotic cable (flexible cable)

Cable length

2	2 m
5	5 m
A	10 m

Driver type

Nil	Without driver
A1	Pulse input type (Incremental encoder) 100 V
A2	Pulse input type (Incremental encoder) 200 V
B1	Pulse input type (Absolute encoder) 100 V
B2	Pulse input type (Absolute encoder) 200 V

IO connector

Nil	None
H	With IO connector

Photo micro switch

Nil	None
1	NPN 1pc.
2	NPN 2pcs.
3	PNP 1pc.
4	PNP 2pcs.

Specifications

Standard stroke (mm)		500	600	700	800	900	1000
Performance	Body weight (kg)	8.5	9.3	10.1	10.9	11.7	12.5
	Operating temperature range (°C)	5 to 40 (No condensation)					
	Work load (kg)	30					
	Maximum speed Note) (mm/s)	1000	1000	930	740	600	500
	Positioning repeatability (mm)	±0.02					
Main parts	Motor	AC servo motor (100 W)					
	Encoder	Incremental system/Absolute type					
	Lead screw	Ground ball screw ø15 mm, 20 mm lead					
	Guide	High rigidity direct acting guide					
	Motor/Screw connection	With coupling					
Driver	Model	LECS□□-□ (Refer to page 97 for details.)					

Note) The speed is limited by the transfer load. Refer to the maximum speeds for each transfer load on the next page.

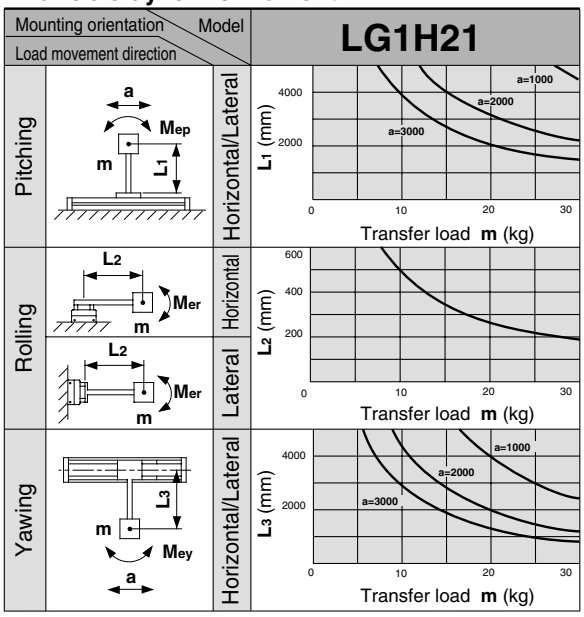
Allowable Moment (N·m)

Allowable static moment

Pitching	142
Rolling	79
Yawing	150

m : Transfer load (kg)
a : Work piece acceleration (mm/s²)
Me: Dynamic moment
L : Overhang to work piece center of gravity (mm)

Allowable dynamic moment



Refer to page 58 for deflection data.

Investigation of the regeneration option

Depending on the conditions (speed, addition-subtraction speed, down time, load, etc.), the regeneration option may be required.
The results of consideration in each case of maximum load or half load for the product specification are below.
Please consult SMC when considering the necessity of the regeneration option.

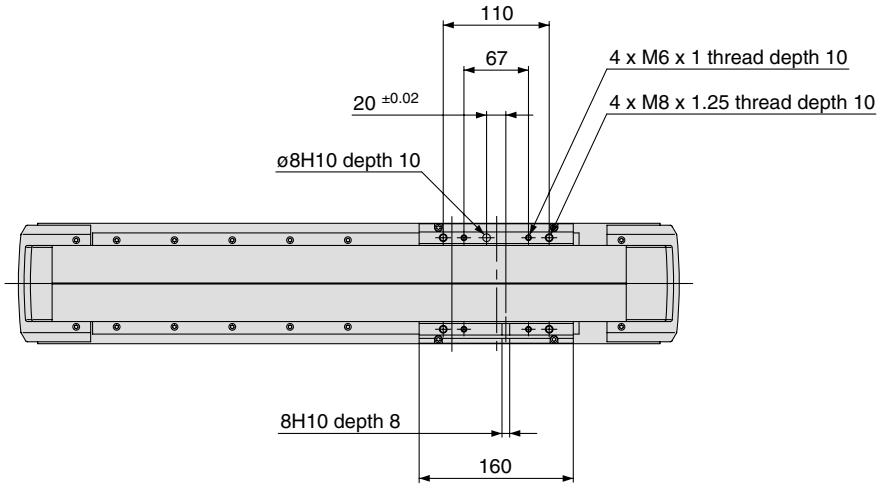
Maximum load

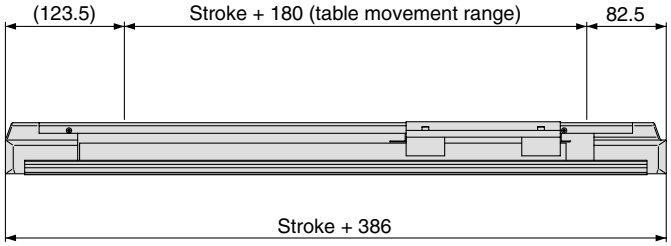
Driver type	Regeneration option model
A1	LEC-MR-RB-032
A2	Not required.
B1	LEC-MR-RB-032
B2	Not required.

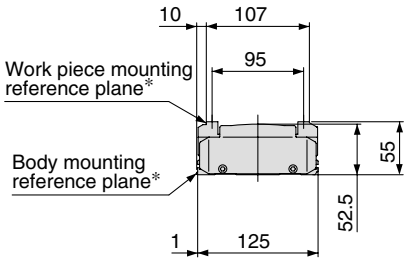
Half load

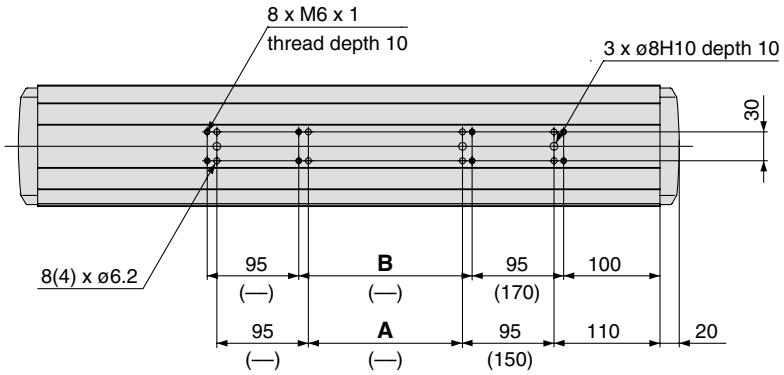
Driver type	Regeneration option model
A1	Not required.
A2	Not required.
B1	Not required.
B2	Not required.

Dimensions/LG1H21□PC









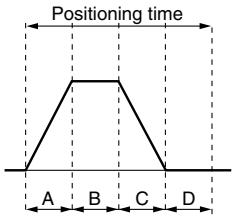
* The body mounting reference plane and work piece mounting reference plane should be used as standards when mounting onto equipment.
Refer to page 57 for mounting.

Model	Stroke	A	B
LG1H21□PC- 500-F□	500	360	380
LG1H21□PC- 600-F□	600	460	480
LG1H21□PC- 700-F□	700	560	580
LG1H21□PC- 800-F□	800	660	680
LG1H21□PC- 900-F□	900	760	780
LG1H21□PC-1000-F□	1000	860	880

Positioning Time Guide

		Positioning time (sec.)				
Positioning distance (mm)		1	10	100	500	1000
Speed (mm/s)	10	0.5	1.5	10.5	50.5	100.5
	100	0.5	0.6	1.5	5.5	10.5
	500	0.5	0.6	0.9	1.7	2.7
	1000	0.5	0.6	0.9	1.4	1.9

* Values will vary slightly depending on the operating conditions.



A: Acceleration time
B: Constant velocity time
C: Deceleration time
D: Resting time (0.4 sec.)
Maximum acceleration: 2000 mm/s^2

Maximum Speeds for Each Transfer Load

Unit (mm/s)

Model	Transfer load (kg)			
	15	20	25	30
LG1H21□PC-500-F□	1000	700	500	500
LG1H21□PC-600-F□	1000	700	500	500
LG1H21□PC-700-F□	930	600	500	500
LG1H21□PC-800-F□	740	600	500	500
LG1H21□PC-900-F□	600	500	500	500
LG1H21□PC-1000-F□	500	500	500	500

* Consult SMC if outside of the above conditions.

Standard Motor/ Horizontal Mount With Coupling

Series LG1H21

Motor Output 100 W | High Rigidity Direct Acting Guide | Rolled Ball Screw ø15 mm/10 mm lead

How to Order

LG1H21 **S2** **NA** – **300** – F **R** **2** **A1** ☐ – ☐

Motor type

S2	AC servo motor (Incremental encoder) 100 W
S6	AC servo motor (Absolute encoder) 100 W

Stroke (mm)
Refer to the standard stroke.

Cable type

S	Standard cable
R	Robotic cable (flexible cable)

Cable length

2	2 m
5	5 m
A	10 m

Driver type

Nil	Without driver
A1	Pulse input type (Incremental encoder) 100 V
A2	Pulse input type (Incremental encoder) 200 V
B1	Pulse input type (Absolute encoder) 100 V
B2	Pulse input type (Absolute encoder) 200 V

IO connector

Nil	None
H	With IO connector

Photo micro switch

Nil	None
1	NPN 1pc.
2	NPN 2pcs.
3	PNP 1pc.
4	PNP 2pcs.

Specifications

Standard stroke (mm)		100	200	300	400
Performance	Body weight (kg)	5.3	6.1	6.9	7.7
	Operating temperature range (°C)	5 to 40 (No condensation)			
	Work load (kg)	30			
	Maximum speed (mm/s)	500			
	Positioning repeatability (mm)	±0.05			
Main parts	Motor	AC servo motor (100 W)			
	Encoder	Incremental system/Absolute type			
	Lead screw	Rolled ball screw ø15 mm, 10 mm lead			
	Guide	High rigidity direct acting guide			
	Motor/Screw connection	With coupling			
Driver	Model	LECS☐☐-☐ (Refer to page 97 for details.)			

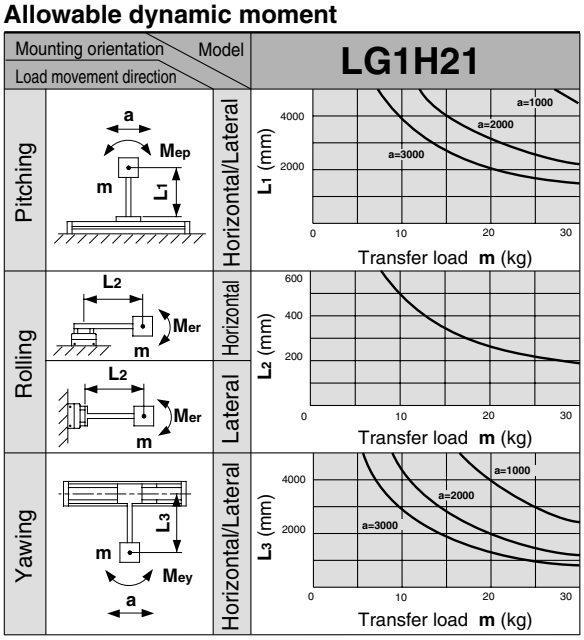
Allowable Moment (N·m)

Allowable static moment

Pitching	142
Rolling	79
Yawing	150

m : Transfer load (kg)
a : Work piece acceleration (mm/s²)
Me: Dynamic moment
L : Overhang to work piece center of gravity (mm)

Allowable dynamic moment



Refer to page 58 for deflection data.

Investigation of the regeneration option

Depending on the conditions (speed, addition-subtraction speed, down time, load, etc.), the regeneration option may be required.
The results of consideration in each case of maximum load or half load for the product specification are below.
Please consult SMC when considering the necessity of the regeneration option.

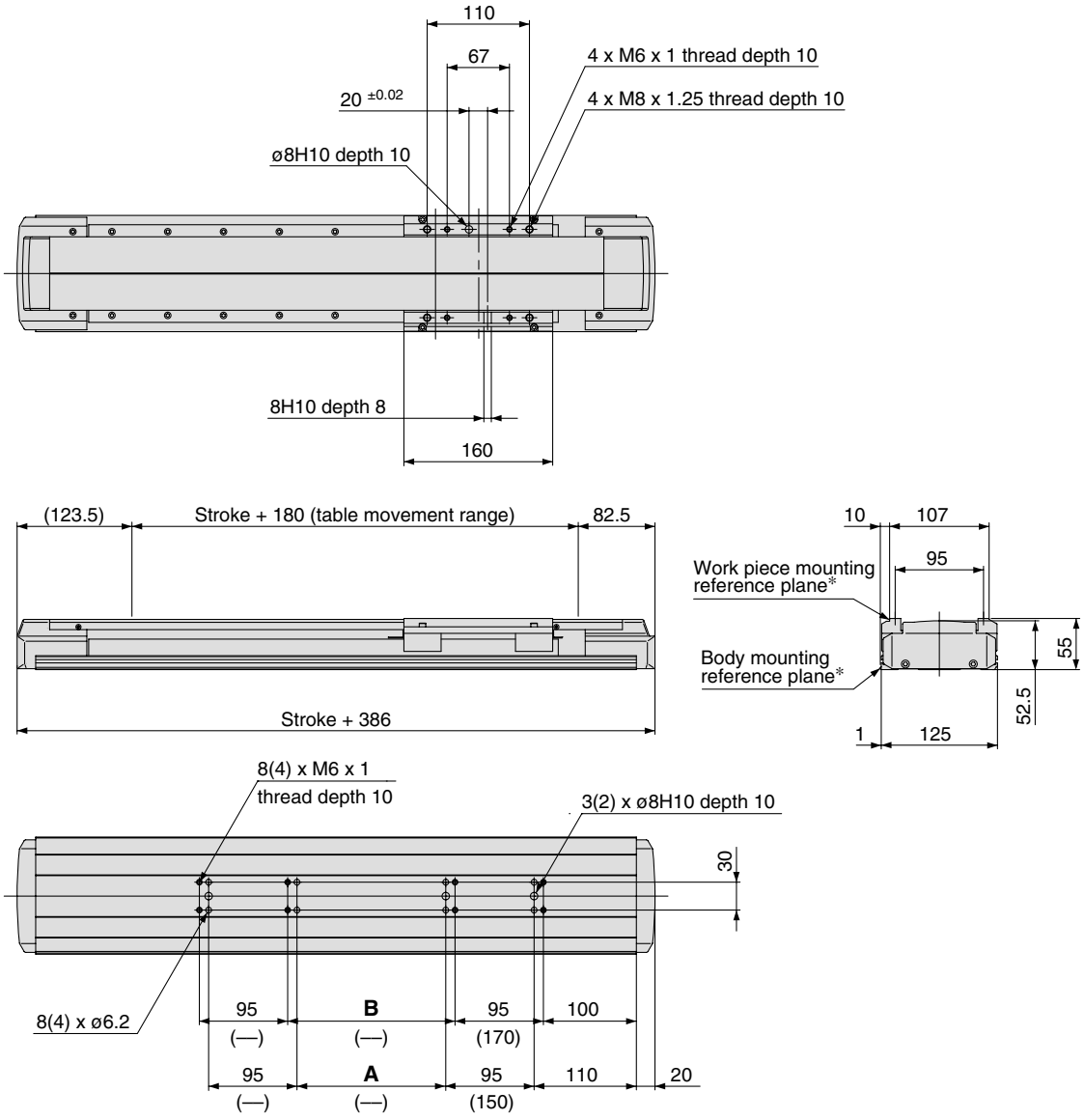
Maximum load

Driver type	Regeneration option model
A1	Not required.
A2	Not required.
B1	Not required.
B2	Not required.

Half load

Driver type	Regeneration option model
A1	Not required.
A2	Not required.
B1	Not required.
B2	Not required.

Dimensions/LG1H21□NA



Model	Stroke	A	B
LG1H21□NA-100-F□*	100	—	—
LG1H21□NA-200-F□	200	60	80
LG1H21□NA-300-F□	300	160	180
LG1H21□NA-400-F□	400	260	280

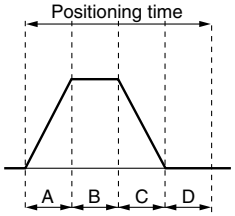
* Dimenstions inside ( ) are for a 100 mm stroke.

* The body mounting reference plane and work piece mounting reference plane should be used as standards when mounting onto equipment. Refer to page 57 for mounting.

Positioning Time Guide

		Positioning time (sec.)				
Positioning distance (mm)		1	10	100	200	400
Speed (mm/s)	10	0.5	1.4	10.4	20.4	40.4
	100	0.5	0.6	1.5	2.5	4.5
	250	0.5	0.6	0.9	1.3	2.1
	500	0.5	0.6	0.8	1.0	1.4

* Values will vary slightly depending on the operating conditions.



A: Acceleration time
B: Constant velocity time
C: Deceleration time
D: Resting time (0.4 sec.)
Maximum acceleration: 3000 mm/s^2

Standard Motor/ Horizontal Mount With Coupling

Series LG1H21

Motor Output 100 W | High Rigidity Direct Acting Guide | Rolled Ball Screw ø15 mm/20 mm lead

How to Order

LG1H21 S2 NC – 500 – F R 2 A1 □ – □

Motor type

S2	AC servo motor (Incremental encoder) 100 W
S6	AC servo motor (Absolute encoder) 100 W

Stroke (mm)
Refer to the standard stroke.

Cable type

S	Standard cable
R	Robotic cable (flexible cable)

Cable length

2	2 m
5	5 m
A	10 m

Driver type

Nil	Without driver
A1	Pulse input type (Incremental encoder) 100 V
A2	Pulse input type (Incremental encoder) 200 V
B1	Pulse input type (Absolute encoder) 100 V
B2	Pulse input type (Absolute encoder) 200 V

IO connector

Nil	None
H	With IO connector

Photo micro switch

Nil	None
1	NPN 1pc.
2	NPN 2pcs.
3	PNP 1pc.
4	PNP 2pcs.

Specifications

Standard stroke (mm)		500	600	700	800	900	1000
Performance	Body weight (kg)	8.5	9.3	10.1	10.9	11.7	12.5
	Operating temperature range (°C)	5 to 40 (No condensation)					
	Work load (kg)	30					
	Maximum speed (mm/s)	1000	1000	930	740	600	500
	Positioning repeatability (mm)	±0.05					
Main parts	Motor	AC servo motor (100 W)					
	Encoder	Incremental system/Absolute type					
	Lead screw	Rolled ball screw ø15 mm, 20 mm lead					
	Guide	High rigidity direct acting guide					
	Motor/Screw connection	With coupling					
Driver	Model	LECS□□-□ (Refer to page 97 for details.)					

Note) The speed is limited by the transfer load. Refer to the maximum speeds for each transfer load on the next page.

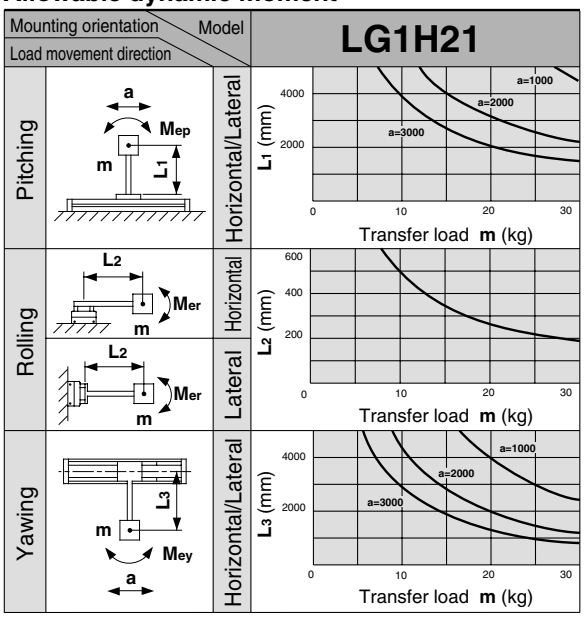
Allowable Moment (N·m)

Allowable static moment

Pitching	142
Rolling	79
Yawing	150

m : Transfer load (kg)
a : Work piece acceleration (mm/s²)
Me: Dynamic moment
L : Overhang to work piece center of gravity (mm)

Allowable dynamic moment



Refer to page 58 for deflection data.

Investigation of the regeneration option

Depending on the conditions (speed, addition-subtraction speed, down time, load, etc.), the regeneration option may be required.
The results of consideration in each case of maximum load or half load for the product specification are below.
Please consult SMC when considering the necessity of the regeneration option.

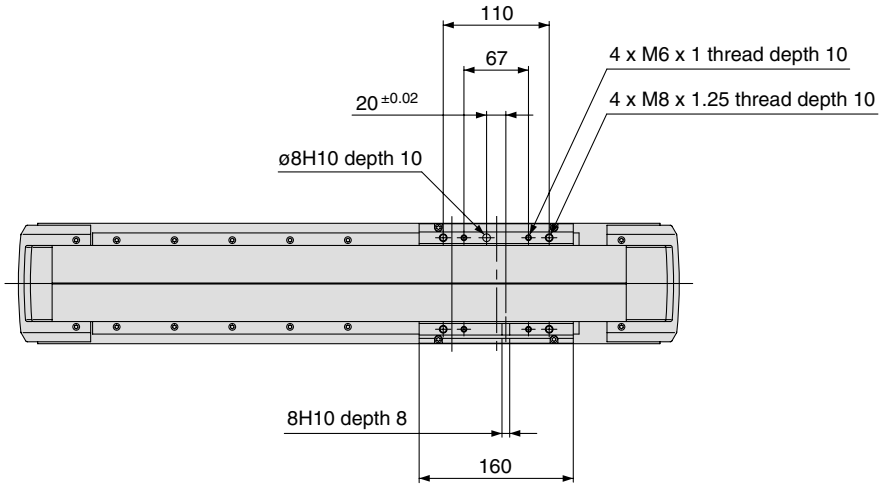
Maximum load

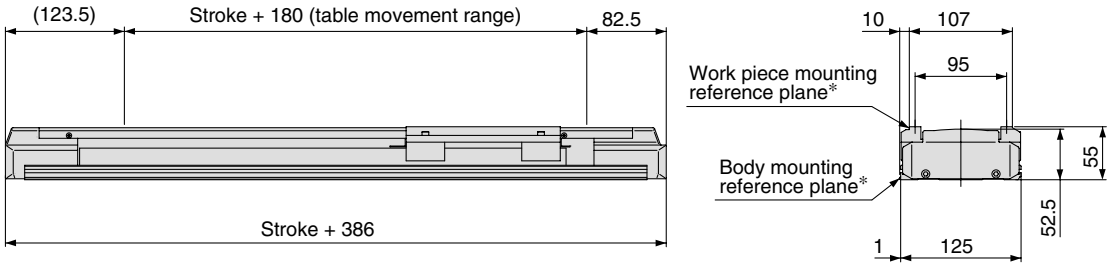
Driver type	Regeneration option model
A1	LEC-MR-RB-032
A2	Not required.
B1	LEC-MR-RB-032
B2	Not required.

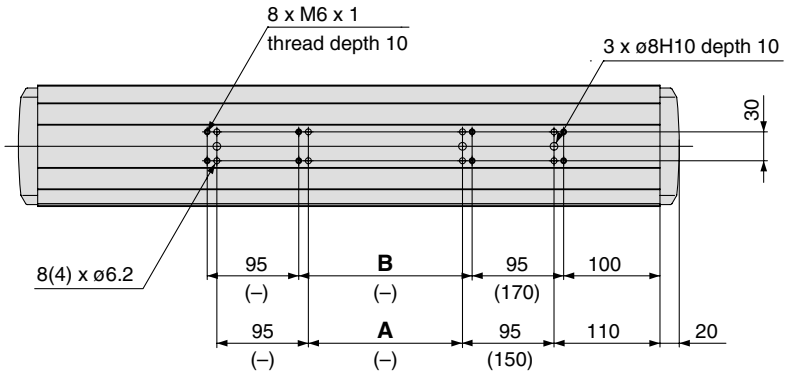
Half load

Driver type	Regeneration option model
A1	Not required.
A2	Not required.
B1	Not required.
B2	Not required.

Dimensions/LG1H21□NC







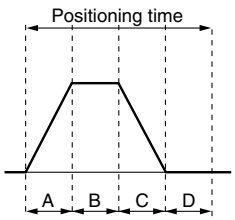
* The body mounting reference plane and work piece mounting reference plane should be used as standards when mounting onto equipment.
Refer to page 57 for mounting.

Model	Stroke	A	B
LG1H21□NC- 500-F□	500	360	380
LG1H21□NC- 600-F□	600	460	480
LG1H21□NC- 700-F□	700	560	580
LG1H21□NC- 800-F□	800	660	680
LG1H21□NC- 900-F□	900	760	780
LG1H21□NC-1000-F□	1000	860	880

Positioning Time Guide

		Positioning time (sec.)				
Positioning distance (mm)		1	10	100	500	1000
Speed (mm/s)	10	0.5	1.5	10.5	50.5	100.5
	100	0.5	0.6	1.5	5.5	10.5
	500	0.5	0.6	0.9	1.7	2.7
	1000	0.5	0.6	0.9	1.4	1.9

* Values will vary slightly depending on the operating conditions.



A: Acceleration time
B: Constant velocity time
C: Deceleration time
D: Resting time (0.4 sec.)
Maximum acceleration: 2000 mm/s^2

Maximum Speeds for Each Transfer Load

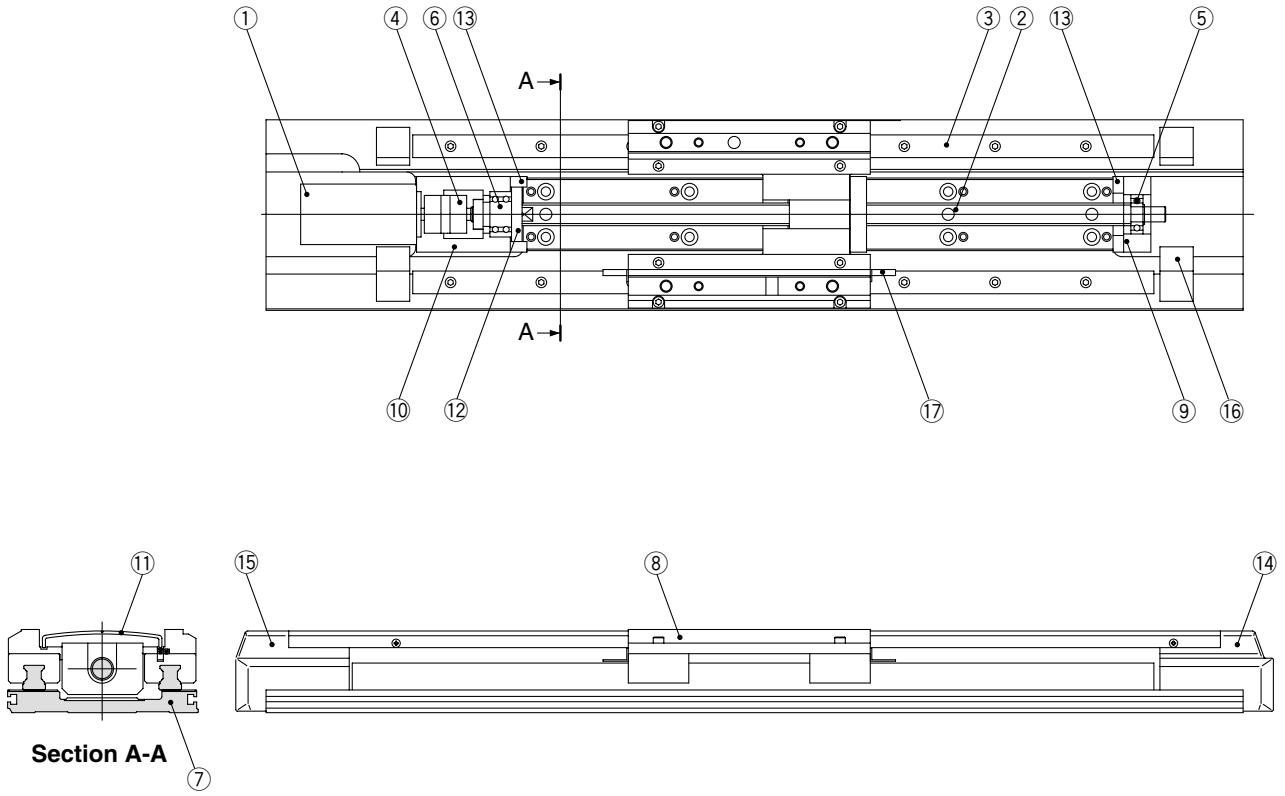
Unit (mm/s)

Model	Transfer load (kg)			
	15	20	25	30
LG1H21□NC-500-F□	1000	700	500	500
LG1H21□NC-600-F□	1000	700	500	500
LG1H21□NC-700-F□	930	600	500	500
LG1H21□NC-800-F□	740	600	500	500
LG1H21□NC-900-F□	600	500	500	500
LG1H21□NC-1000-F□	500	500	500	500

* Consult SMC if outside of the above conditions.

Construction/ With Coupling

LG1H21



Parts list

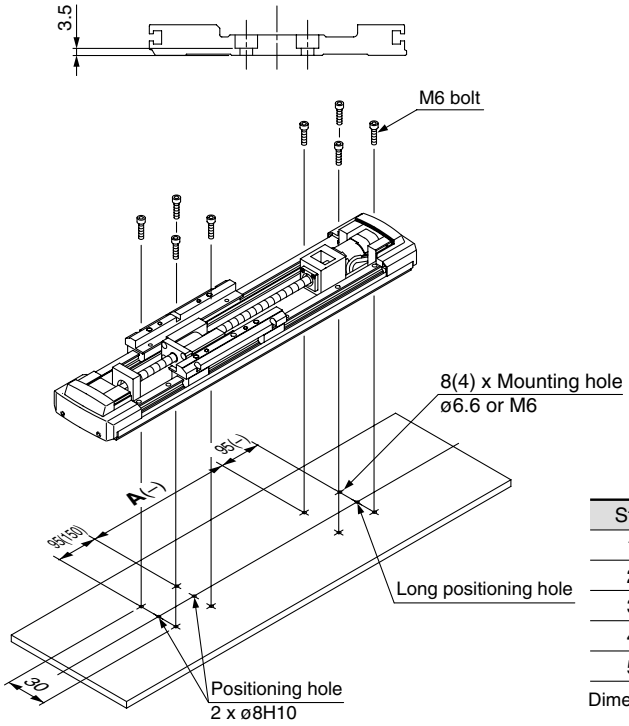
No.	Description	Material	Note
1	**AC servo motor**	—	100 W
2	**Lead screw**	—	Ball screw
3	**High rigidity direct acting guide**	—	
4	**Coupling**	—	
5	**Bearing R**	—	
6	**Bearing F**	—	
7	**Body**	Aluminum alloy	
8	**Table**	Aluminum alloy	
9	**Housing A**	Aluminum alloy	
10	**Housing B**	Aluminum alloy	

No.	Description	Material	Note
11	**Top cover**	Aluminum alloy	
12	**Bearing retainer**	Aluminum alloy	
13	**Bumper**	IIR	
14	**End cover A**	PC	
15	**End cover B**	PC	
16	**Photo micro sensor**	—	
17	**Sensor plate**	—	

Mounting

Top Mount

LG1H21/ With coupling

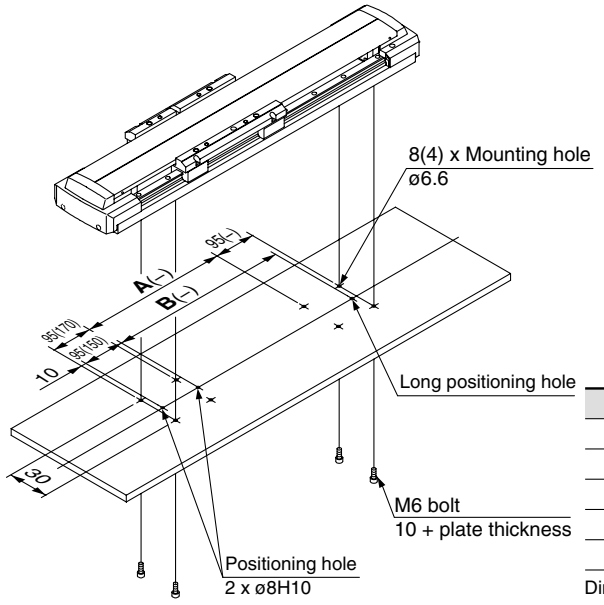


Stroke	A	Stroke	A
100	—	600	460
200	60	700	560
300	160	800	660
400	260	900	760
500	360	1000	860

Dimensions inside ( ) are for a 100 mm stroke.

Bottom Mount

LG1H21/ With coupling



Stroke	A	B	Stroke	A	B
100	—	—	600	480	555
200	80	155	700	580	655
300	180	255	800	680	755
400	280	355	900	780	855
500	380	455	1000	880	955

Dimensions inside ( ) are for a 100 mm stroke.

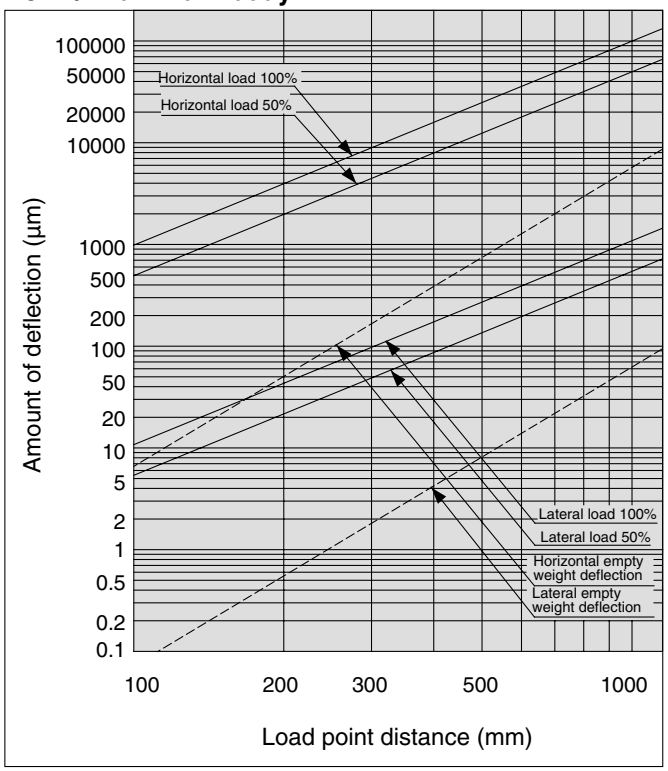
Series LG1H
Deflection Data

Deflection Data

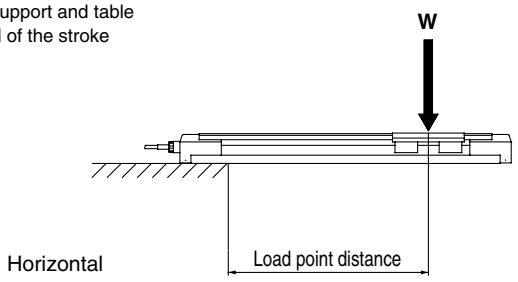
∗ Calculated values based on the body's sectional secondary moment.

The load and the amount of deflection at load point W are shown in the graphs below.

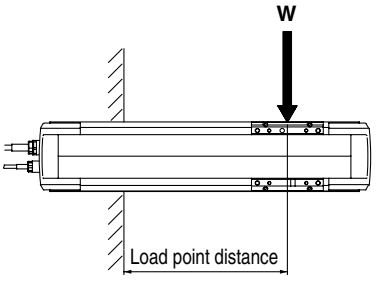
LG1H/ Aluminum body



With single end support and table moved to the end of the stroke



Horizontal



Lateral

Series LECSA　　Series LECSB

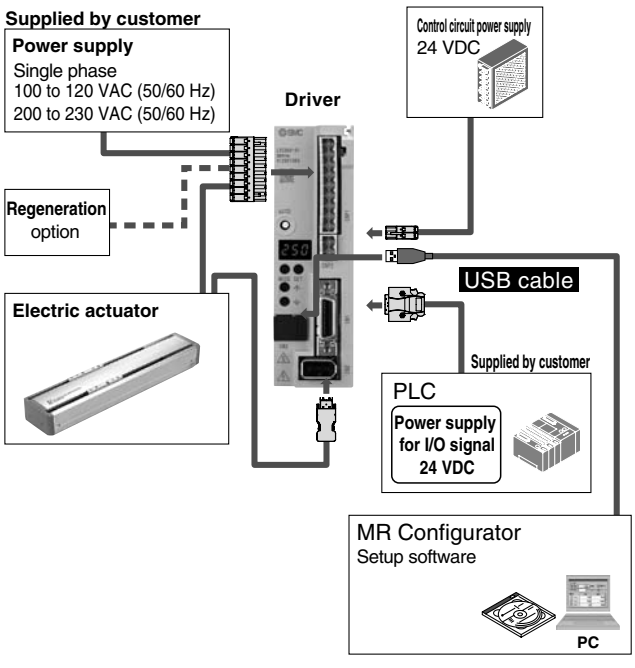
AC Servo Motor Driver (Pulse Input Type)

Incremental Type
Series LECSA

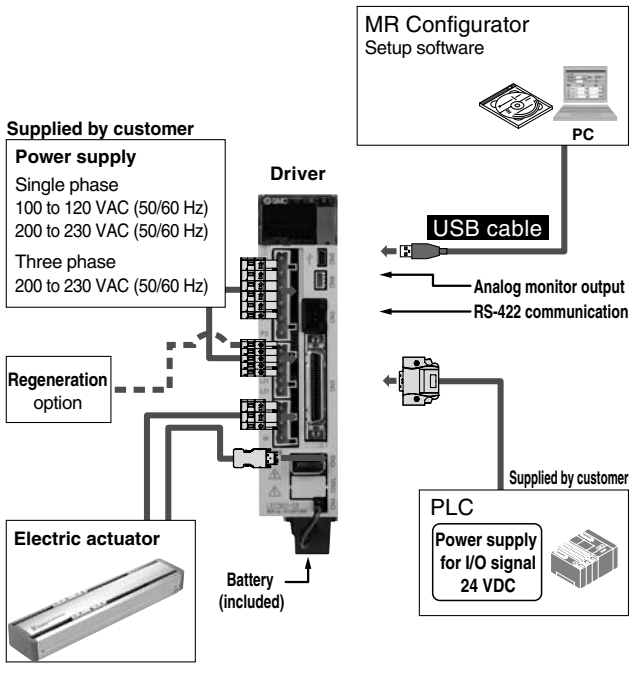
Absolute Type
Series LECSB

Compatible Actuator	Page
Single Axis Electric Actuator Series **LJ1H**	Page 1
Low Profile Single Axis Electric Actuator Series **LG1H**	Page 47
Electric Actuator with Integrated Guide Series **LTF**	Page 59

Incremental encoder compatible ***Series* LECSA**



Absolute encoder compatible ***Series* LECSB**



AC Servo Motor Driver (Pulse Input Type)

Incremental Type

Series LECSA

Absolute Type

Series LECSB

LECSA **LECSB**

How to Order

LECS A 1 – S1

Driver type

A	Pulse input type (For incremental encoder)
B	Pulse input type (For absolute encoder)

Power supply voltage

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

Motor type

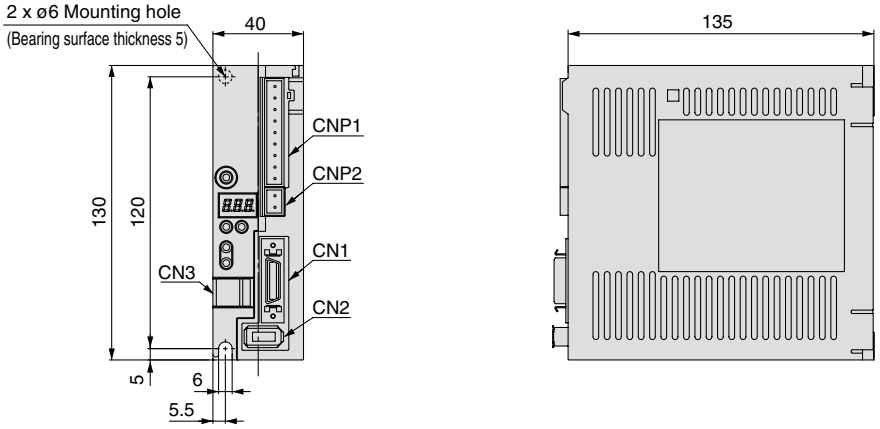
Symbol	Type	Capacity	Encoder
S1	AC servo motor (S2)	100 W	Incremental
S3	AC servo motor (S3)	200 W	
S5	AC servo motor (S6)	100 W	Absolute
S7	AC servo motor (S7)	200 W	

Part no. list Select controller type and compatible motor from the combinations in the table below.

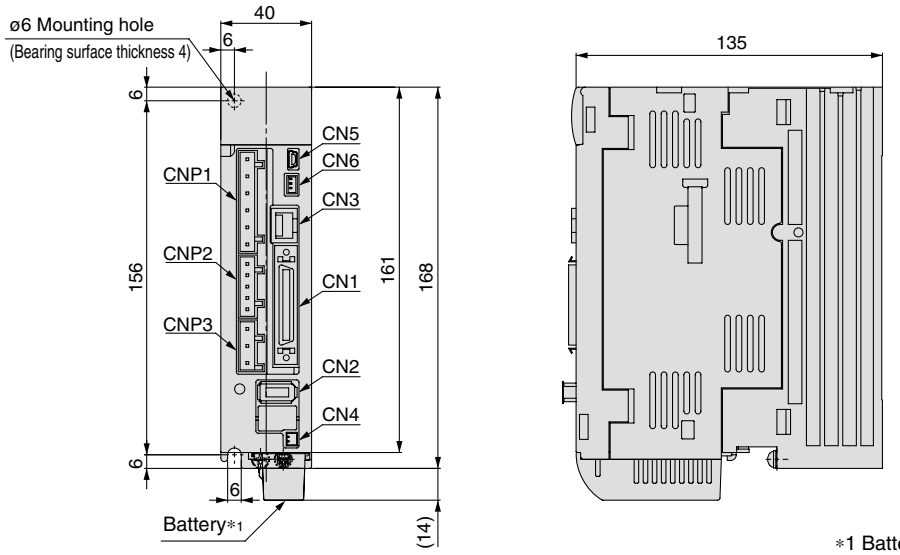
Controller part no.	Controller type	Motor type	Power supply voltage
LECSA1-S1	Pulse input type (For incremental encoder)	AC servo motor (S2)	100 to 120 VAC 50/60 Hz
LECSA1-S3		AC servo motor (S3)	
LECSA2-S1		AC servo motor (S2)	200 to 230 VAC 50/60 Hz
LECSA2-S3		AC servo motor (S3)	
LECSB1-S5	Pulse input type (For absolute encoder)	AC servo motor (S6)	100 to 120 VAC 50/60 Hz
LECSB1-S7		AC servo motor (S7)	
LECSB2-S5		AC servo motor (S6)	200 to 230 VAC 50/60 Hz
LECSB2-S7		AC servo motor (S7)	

Dimensions

LECSA□



LECSB□



*1 Battery included.

SMC

Specifications

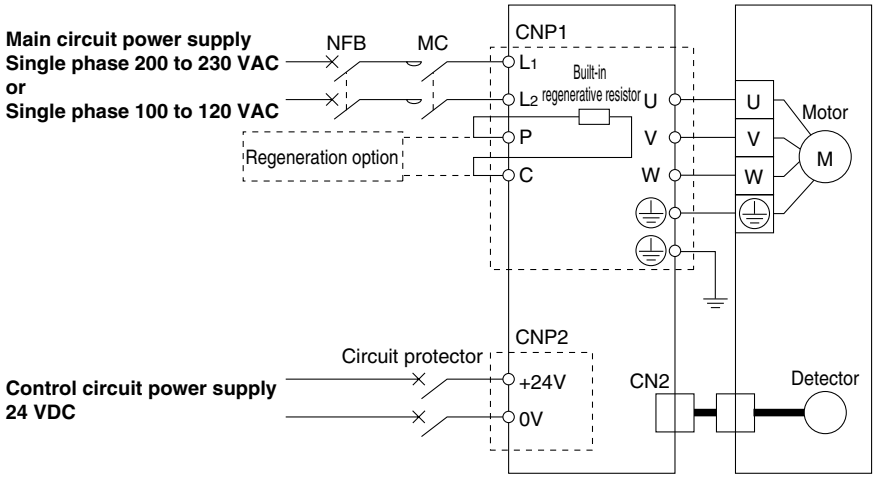
Model		LECSA1-S1	LECSA1-S3	LECSA2-S1	LECSA2-S3
Compatible motor capacity [W]		100	200	100	200
Compatible encoder		Incremental 17-bit encoder (Resolution: 131072 p/rev)			
Main power supply	**Power voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage range [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC	
	Rated voltage [A]	3.0	5.0	1.5	2.4
Control power supply	**Control power supply voltage [V]**	24 VDC			
	Allowable voltage range for control power supply [V]	21.6 to 26.4 VDC			
	Rated voltage [A]	0.5			
Parallel input		6 inputs			
Parallel output		4 outputs			
Max. input pulse frequency [pps]		1 M (when differential receiver), 200 k (when open collector)			
Function	Positioning completion width setting range [pulse]	0 to ±65535 (Pulse command unit)			
	Error excessive	±3 rotations			
	Torque limit	Parameter setting			
	Communication	USB communication			
Operating temperature range [˚C]		0 to 40 (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 case and SG: 10 (500 VDC)			
Weight [g]		600			

Model		LECSB1-S5	LECSB1-S7	LECSB2-S5	LECSB2-S7
Compatible motor capacity [W]		100	200	100	200
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 p/rev)			
Main power supply	**Power voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage range [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC	
	Rated voltage [A]	3.0	5.0	0.9	1.5
Control power supply	**Control power supply voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage range for control power supply [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC	
	Rated voltage [A]	0.4		0.2	
Parallel input		10 inputs			
Parallel output		6 outputs			
Max. input pulse frequency [pps]		1 M (when differential receiver), 200 k (when open collector)			
Function	Positioning completion width setting range [pulse]	0 to ±10000 (Pulse command unit)			
	Error excessive	±3 rotations			
	Torque limit	Parameter setup or external analog input setup (0 to 10 VDC)			
	Communication	USB communication, RS422 communication*1			
Operating temperature range [˚C]		0 to 40 (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 case and SG: 10 (500 VDC)			
Weight [g]		800			

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

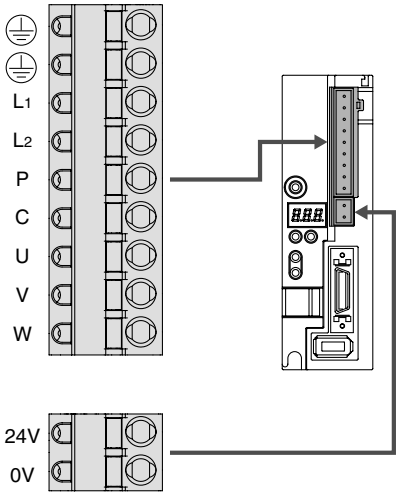
Power Supply Wiring Example: LECSA

LECSA□-□



Main Circuit Power Supply Connector: CNP1 ∗Accessory

Terminal name	Function	Function details
⏚	Protective earth (PE)	Should be grounded via servo motor's earth terminal and control panel's protective earth (PE) after connecting them.
L_1	Main circuit power supply	Connect the main circuit power supply. LECSA1: Single phase 100 to 120 VAC, 50/60 Hz LECSA2: Single phase 200 to 230 VAC, 50/60 Hz
L_2		
P	Regeneration option	Terminal to connect regeneration option LECSA□-S1: No need for connection LECSA□-S3, S4: Connected at time of shipping. ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
U	Servo motor power (U)	Connect to motor cable (U, V, W)
V	Servo motor power (V)	
W	Servo motor power (W)	

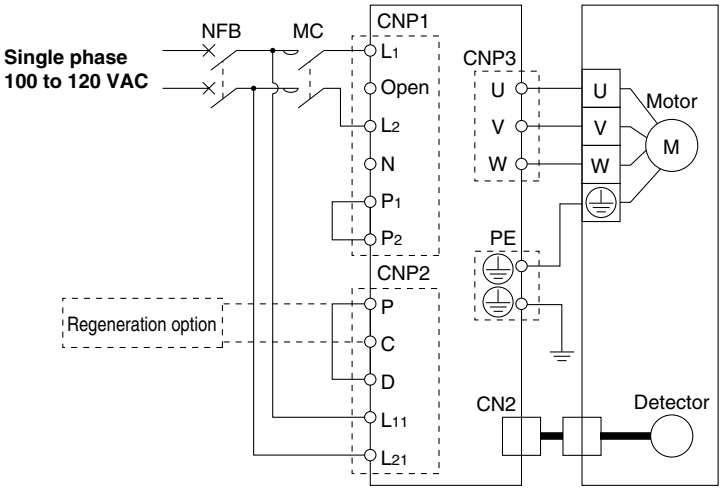


Control Circuit Power Supply Connector: CNP2 ∗Accessory

Terminal name	Function	Function details
24V	Control circuit power supply (24V)	24V side of the control circuit power supply (24 VDC) which supplies the controller.
0V	Control circuit power supply (0V)	0V side of the control circuit power supply (24 VDC) which supplies the controller.

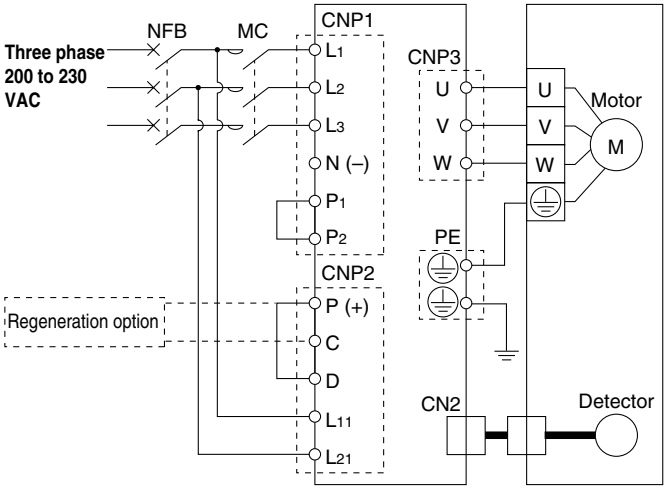
Power Supply Wiring Example: LECSB

LECSB1-□

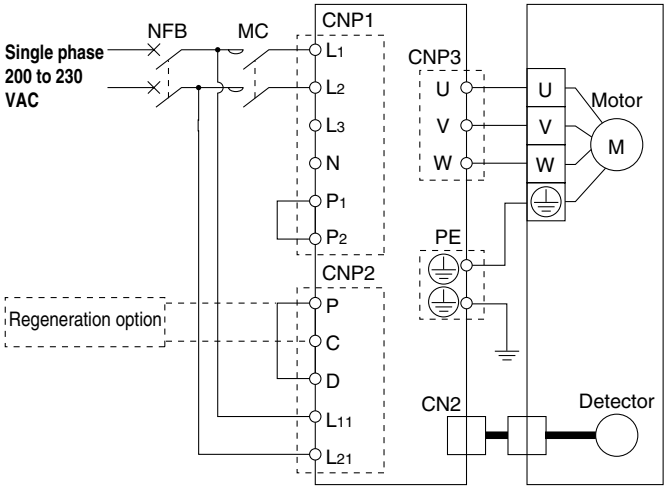


LECSB2-□

For three phase 200 VAC



For single phase 200 VAC



Note) For single phase 200 to 230 VAC, power supply should be connected to L_1 and L_2 terminals, with nothing connected to L_3.

Main Circuit Power Supply Connector: CNP1 ∗Accessory

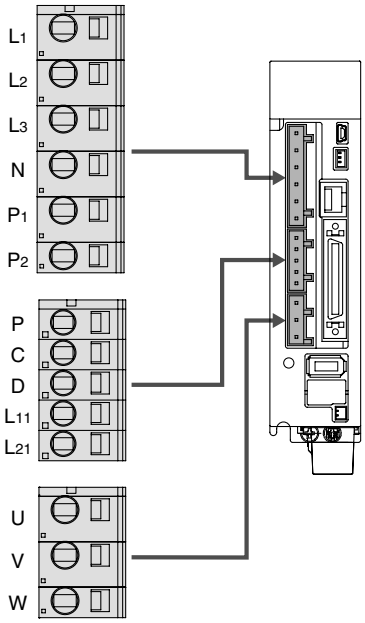
Terminal name	Function	Function details
L_1	Main circuit power supply	Connect the main circuit power supply. LECSB1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_1,L_2 LECSB2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_1,L_2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_1,L_2,L_3
L_2		
L_3		
N	Regeneration converter	Do not connect.
P_1	DC reactor	Connect between P_1 and P_2. (Connected at time of shipping.)
P_2		

Control Circuit Power Supply Connector: CNP2 ∗Accessory

Terminal name	Function	Function details
P	Regeneration option	Connect between P and D. (Connected at time of shipping.) ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
D		
L_{11}	Control circuit power supply (24 V)	24V side of the control circuit power supply (24 VDC) which supplies the controller.
L_{21}	Control circuit power supply (0 V)	0V side of the control circuit power supply (24 VDC) which supplies the controller.

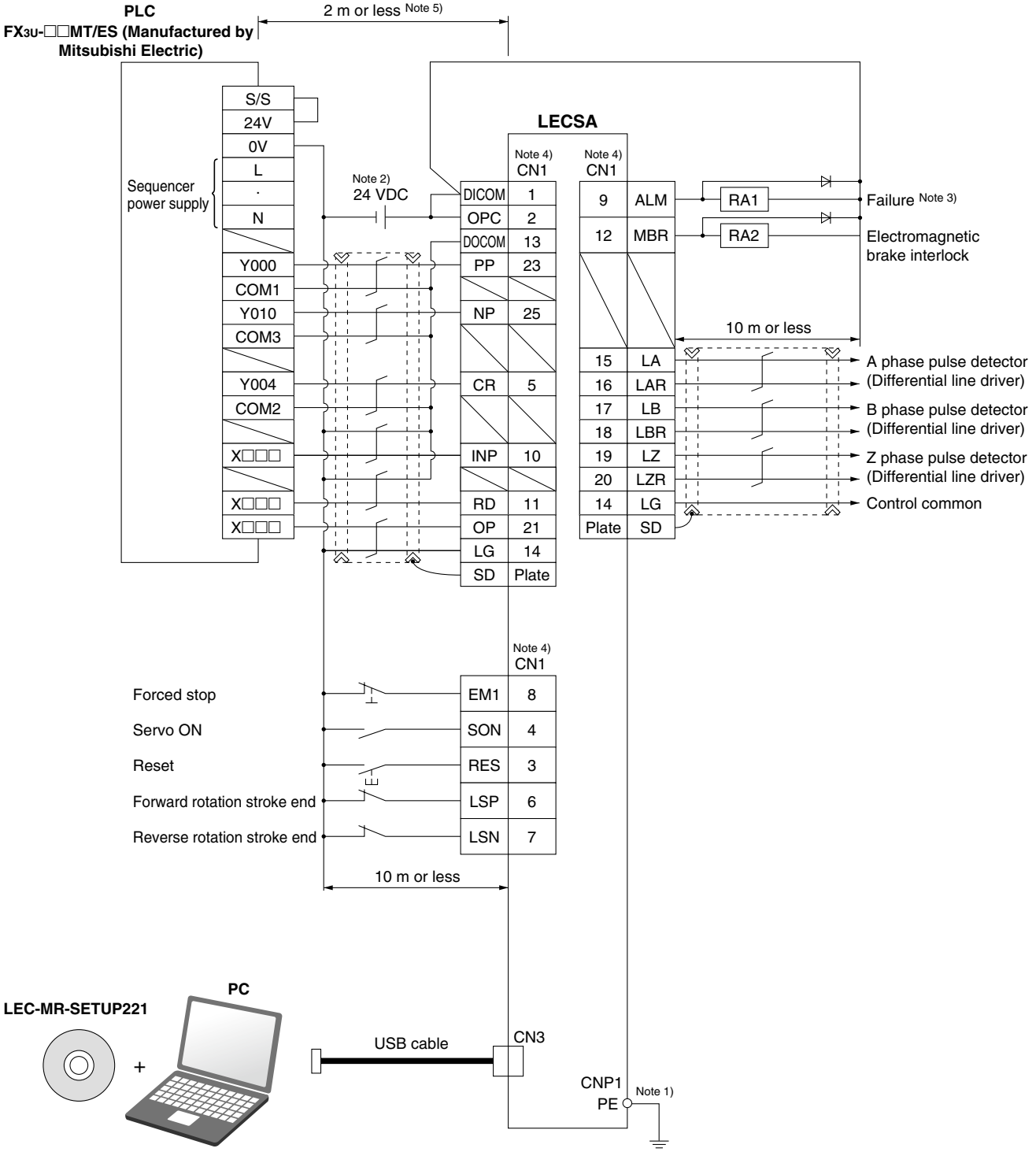
Motor Connector: CNP3 ∗Accessory

Terminal name	Function	Function details
U	Servo motor power (U)	Connect to motor cable (U, V, W)
V	Servo motor power (V)	
W	Servo motor power (W)	



Control Signal Wiring Example: LECSA

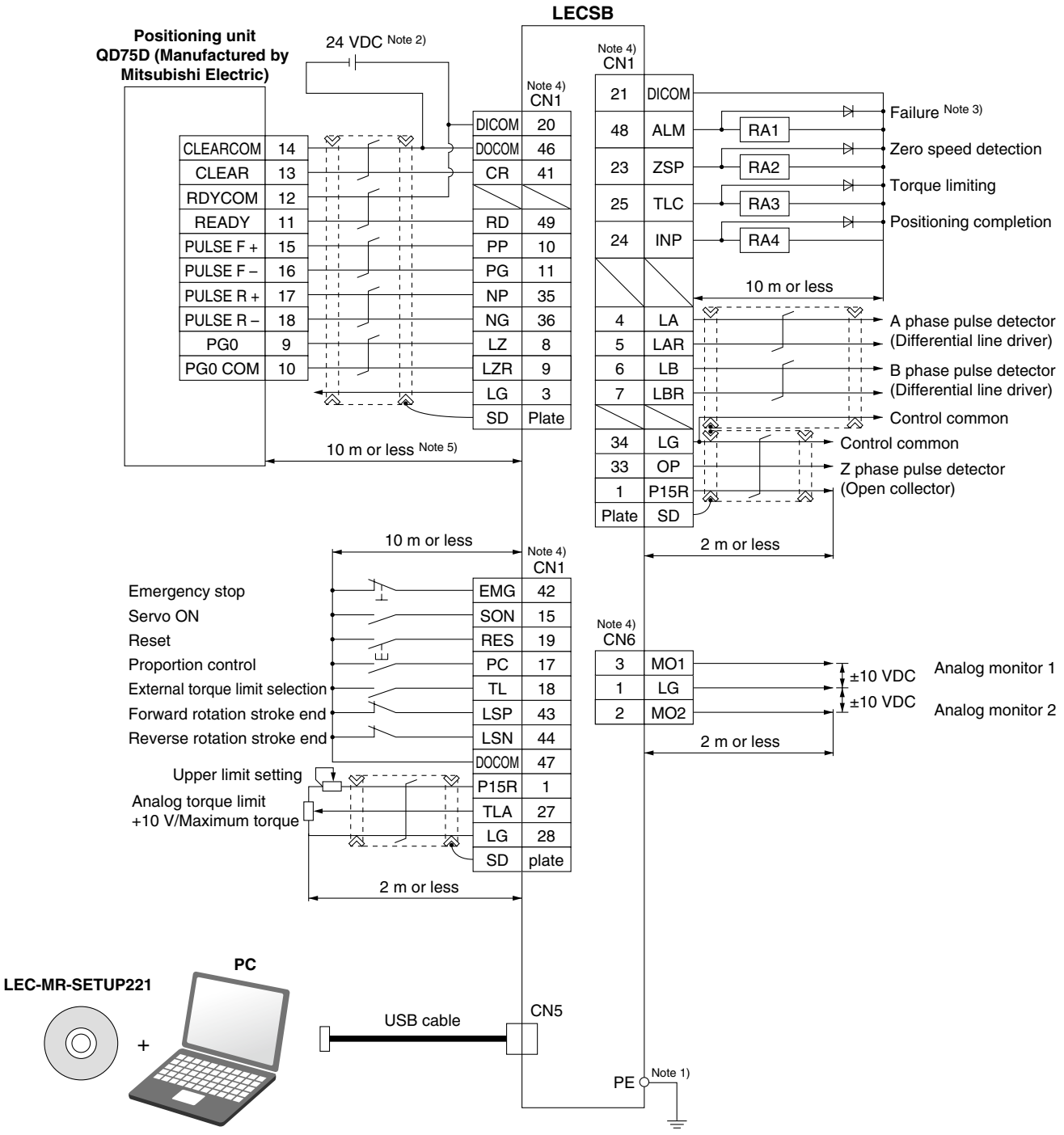
LECSA□-□



Note 1) For preventing electric shock, be sure to connect the main circuit power supply connector for the servo amplifier (CNP1)'s protective earth (PE) terminal to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 200 mA using an external source. 200 mA is the value when all I/O command signals are used and reducing the number of inputs/outputs can decrease current capacity. Refer to "Operation Manual" for required current for interface.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.
Note 4) The same name signals are connected inside the servo amplifier.
Note 5) For command pulse input with an open collector method. When a positioning unit loaded with a differential line driver method is used, it is 10 m or less.

Control Signal Wiring Example: LECSB

LECSB□-□



Note 1) For preventing electric shock, be sure to connect the servo amplifier's protective earth (PE) terminal to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 300 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.
Note 4) The same name signals are connected inside the servo amplifier.
Note 5) For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.

Options

Motor cable, Lock cable, Encoder cable

LE − CS M − S 5 A

Motor type

S	AC servo motor

Direction of connector

A	Axis side
B	Counter axis side

Cable contents

M	Motor cable
B	Lock cable
E	Encoder cable

Cable length (L) [m]

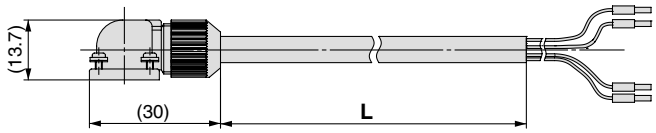
2	2
5	5
A	10

Cable type

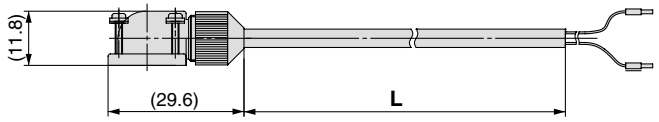
S	Standard cable
R	Robotic cable

∗ For cases where the cable is mounted before delivery, the direction of the connector is listed below.
Motor cable: Counter axis side
Lock cable: Counter axis side
Encoder cable: Axis side

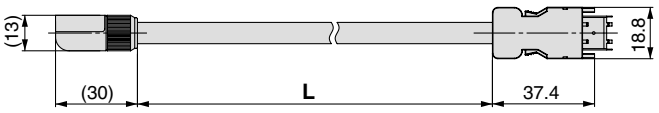
LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable



LE-CSE-□□: Encoder cable



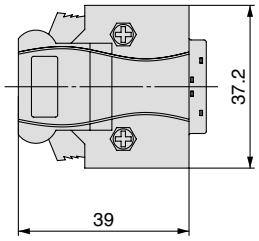
I/O connector

LE − C SNA

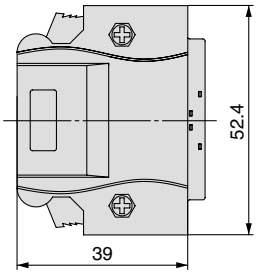
Controller type

SNA	I/O connector (**LECSA**□)
SNB	I/O connector (**LECSB**□)

LE-CSNA



LE-CSNB

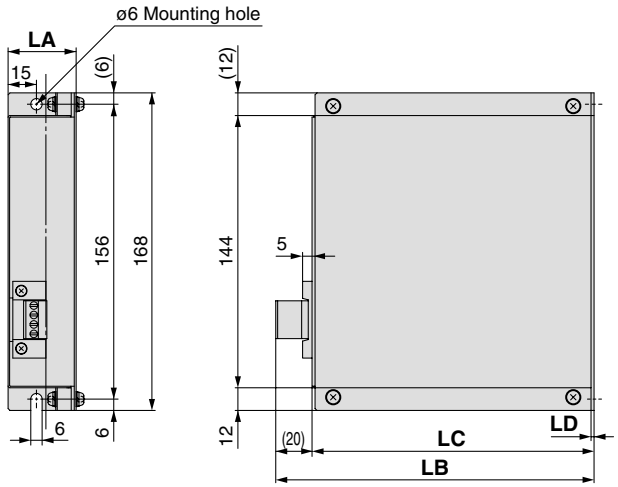


Regeneration option

LEC − MR − RB − □

Regeneration option type

032	Allowable regeneration power 30 W
12	Allowable regeneration power 100 W



Dimensions [mm]

Model	LA	LB	LC	LD
LEC-MR-RB-032	30	119	99	1.6
LEC-MR-RB-12	40	169	149	2

Options

MR Configurator (setup software Japanese version)

LEC−MR−SETUP221

∗ MRZJW3-SETUP221 manufactured by Mitsubishi Electric.
Refer to Mitsubishi Electric's website for operating environment and update information.

Compatible PC

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

Hardware Requirements

Equipment		MR Configurator (setup software) **LEC-MR-SETUP221**
Note 1) Note 2) Note 3) PC	OS	Windows®98, Windows®Me, Windows®2000 Professional, Windows®XP Professional/Home Edition, Windows Vista® Home Basic/Home Premium, Business/Ultimate/Enterprise Windows®7 Starter/Home Premium/Professional/ Ultimate/Enterprise IBM PC/AT compatible PC (Japanese version)
	Available HD space	130 MB or more
	Communication interface	Use USB port
Display		Resolution 1024 x 768 or more Must be capable of high color (16 bits) display. The connectable with the above PC
Keyboard		The connectable with the above PC
Mouse		The connectable with the above PC
Printer		The connectable with the above PC
Communication cable		LEC-MR-J3USB

Note 1) Windows, Windows Vista, Windows 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 2) This software may not run correctly depending on the PC that you are using.
Note 3) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.

USB cable (3 m) for setup software

LEC−MR−J3USB

Battery

LEC−MR−J3BAT

Series LECSA/LECSB
Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions.
Please download it via our website. http://www.smcworld.com

Design/Selection

⚠Warning

1. Be sure to apply the specified voltage.
Otherwise, malfunction and breakage may be caused. If the applied voltage is lower than the specified, it is possible that the load cannot 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 can result. Please check the specifications before use.

3. Install an emergency stop circuit outside of the enclosure.
Please install an emergency stop outside of the enclosure so that it can stop the system operation immediately and intercept the power supply.

4. In order to prevent damage due to the breakdown and the malfunction of the driver and its peripheral devices, a backup system should be established previously by giving a multiple-layered structure or a fail-safe design to the equipment, etc.

5. If a danger against the personnel is expected due to an abnormal heat generation, smoking, ignition, etc., of the driver and its peripheral devices, cut off the power supply for the product and the system immediately.

Handling

⚠Warning

1. Do not touch the inside of the driver and its peripheral devices.
It may cause an electric shock or damage to the driver.

2. Do not perform the operation or setting of the product with wet hands.
It may cause an electric shock.

3. Product with damage or the one lacking of any components should not be used.
It may cause an electric shock, fire, or injury.

4. Use only the specified combination between the electric actuator and driver.
It may cause damage to the actuator or the driver.

5. Be careful not to be caught or hit by the workpiece 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 power has been disconnected, as it is very hot.
It may lead to a burn due to the high temperature.

8. Check the voltage using a tester for more than 5 minutes after power-off in case of installation, wiring and maintenance.
It may cause an electric shock, fire, or injury.

Handling

⚠Warning

9. Static electricity may cause 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 the environment of flammable gas, explosive gas and corrosive gas.
It could lead to fire, explosion and corrosion.

13. Radiant heat from strong heat supplies 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 supplies 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 directly driven, use a product that incorporates a surge absorption element.

Installation

⚠Warning

1. Install the driver and its peripheral devices on a fireproof material.
A direct installation on or near a flammable material may cause 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 affixed verticallyto a vertical wall. Do not cover the driver's exhaust opening.

4. Install the driver and its peripheral devices on a flat surface.
If the mounting surface is distorted or not flat, an unacceptable force may be added to the housing, etc., to cause troubles.

Series LECSA/LECSB
Specific Product Precautions 2

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions.
Please download it via our website. http://www.smcworld.com

Power Supply

⚠Caution

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

Wiring

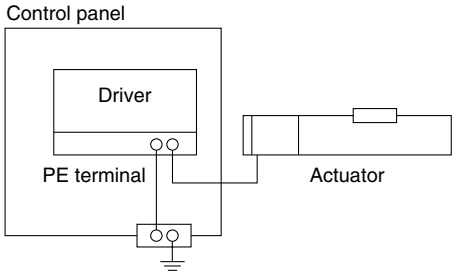
⚠Warning

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

Grounding

⚠Warning

1. **Be sure to carry out grounding in order to ensure the noise tolerance.**
   For grounding 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 malfunction is caused by ground, please disconnect the unit from ground.**

Maintenance

⚠Warning

1. **Perform a maintenance check 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.**
   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 secure the 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 of the driver.**
   It may cause a fire.
5. **Do not conduct an insulation resistance test and withstand voltage test on this product.**
6. **Ensure sufficient space for maintenance activities.**
   Design the system that allows required space for maintenance.