AC Servo Motor Driver

RoHS

LECS□/LECSS-T/LECY□ Series

Pulse Input Type/ Positioning Type ····· Page 613

Incremental Type/
***LECSA* Series**

Pulse Input Type ····· Page 613

Absolute Type/
***LECSB* Series**

CC-Link Direct Input Type ·· Page 613

Absolute Type/
***LECSC* Series**

CC-Link

SSCNET Ⅲ Type ····· Page 613

Absolute Type/
***LECSS* Series**

SSCNETⅢ
SERVO SYSTEM CONTROLLER NETWORK

SSCNET Ⅲ/H Type ····· Page 613

Absolute Type/
***LECSS-T* Series**

SSCNETⅢ/H
SERVO SYSTEM CONTROLLER NETWORK

c UL us
LISTED

MECHATROLINK-Ⅱ Type ····· Page 628-1

Absolute Type/
***LECYM* Series**

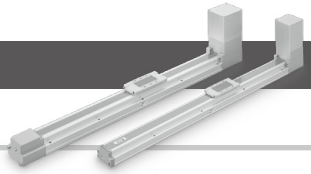
MECHATROLINK-Ⅱ

MECHATROLINK-Ⅲ Type ····· Page 628-1

Absolute Type/
***LECYU* Series**

MECHATROLINK-Ⅲ

LECS□/LECSS-T/LECY□ Series list



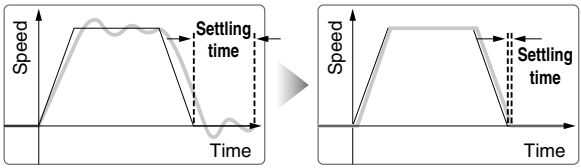
Series		Compatible motor			Control method			Application/ Function	Compatible option
		100 W	200 W	400 W	Note 1) Positioning	Pulse	Network direct input	Note 2) Synchronous	Setup software
Incremental Type	**LECSA** (Pulse input type/ Positioning type)	●	●	●	Up to 7 points ○	○			LEC-MRC2 ◉
Absolute Type	**LECSB** (Pulse input type)	●	●	●		○			LEC-MRC2 ◉
	CC-Link **LECSC** (CC-Link direct input type)	●	●	●	Up to 255 points ○		CC-Link Ver. 1.10 ○		LEC-MRC2 ◉
	SSCNETⅢ **LECSS** (SSCNET Ⅲ type) Compatible with Mitsubishi Electric's servo system controller network	●	●	●			SSCNET Ⅲ ○	Note 2) ○	LEC-MRC2 ◉
	SSCNETⅢ/H **LECSS-T** (SSCNET Ⅲ/H type) Compatible with Mitsubishi Electric's servo system controller network	●	●	●			SSCNET Ⅲ/H ○	Note 2) ○	LEC-MRC2 ◉
	MECHATROLINK-Ⅱ **LECYM**	●	●	●			MECHATRO LINK-Ⅱ ○	Note 3) ○	SigmaWin+™ ◉
	MECHATROLINK-Ⅲ **LECYU**	●	●	●			MECHATRO LINK-Ⅲ ○	Note 3) ○	SigmaWin+™ ◉

Note 1) For positioning type, setting needs to be changed to use with maximum set values.
Setup software (MR Configurator2™) LEC-MRC2 is required.
Note 2) Available when the Mitsubishi motion controller is used for the master equipment.
Note 3) Available when the motion controller is used for the master equipment.
∗ For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

Gain adjustment using auto tuning

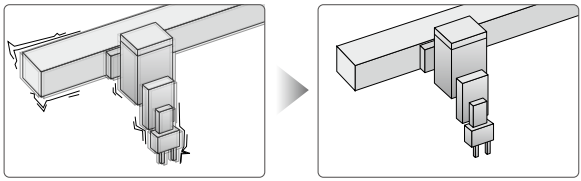
Auto tuning function

- Control the difference between command value and actual action



Vibration suppression control function

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



With display setting function

One-touch adjustment button

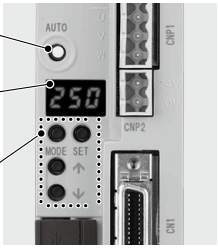
One-touch servo adjustment

Display

Display the monitor, parameter and alarm.

Settings

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



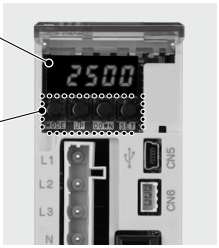
LECSA

Display

Display the monitor, parameter and alarm.

Settings

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



(With the front cover opened)

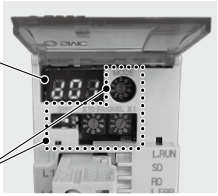
LECSB

Display

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

Settings

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



(With the front cover opened)

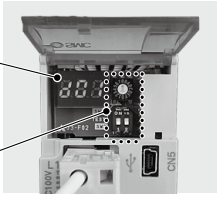
LECSC

Display

Display the communication status with the driver and the alarm.

Settings

Switches for selecting axis and switching to the test operation



(With the front cover opened)

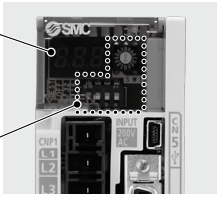
LECSS

Display

Display the communication status with the driver and the alarm.

Settings

Switches for axis setting, control axis deactivation, switching to test operation, and other operations



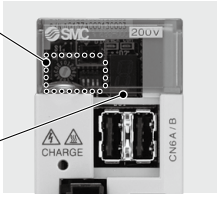
LECSS2-T

Settings

Switches for station address, communication speed, number of transmission bytes, and other operations

Display

Driver status and alarm display



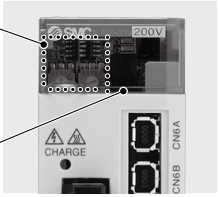
LECYM

Settings

Switches for station address, number of transmission bytes, and other operations

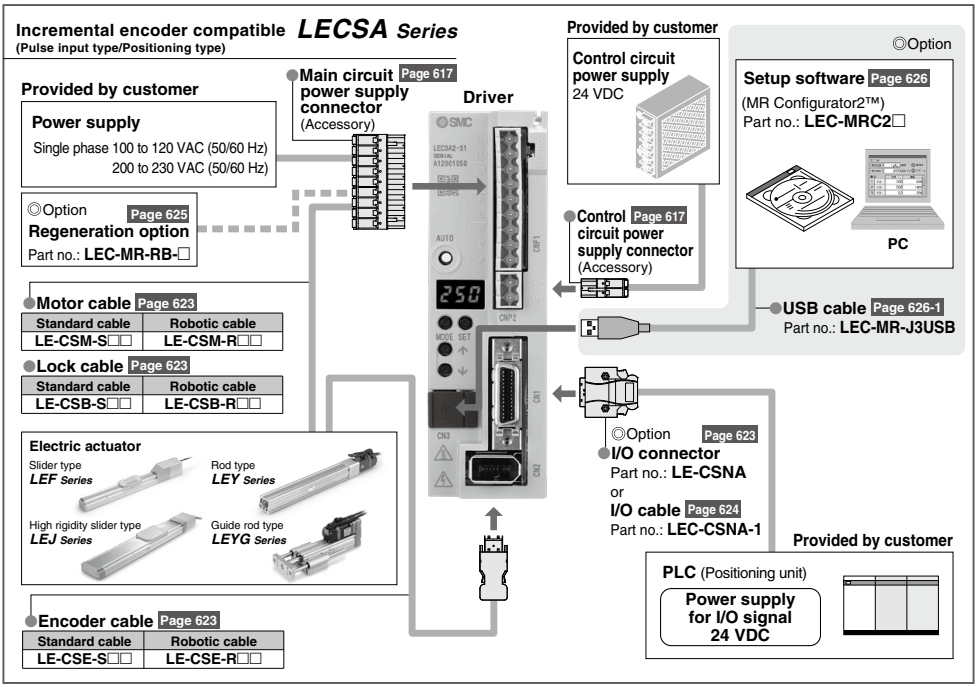
Display

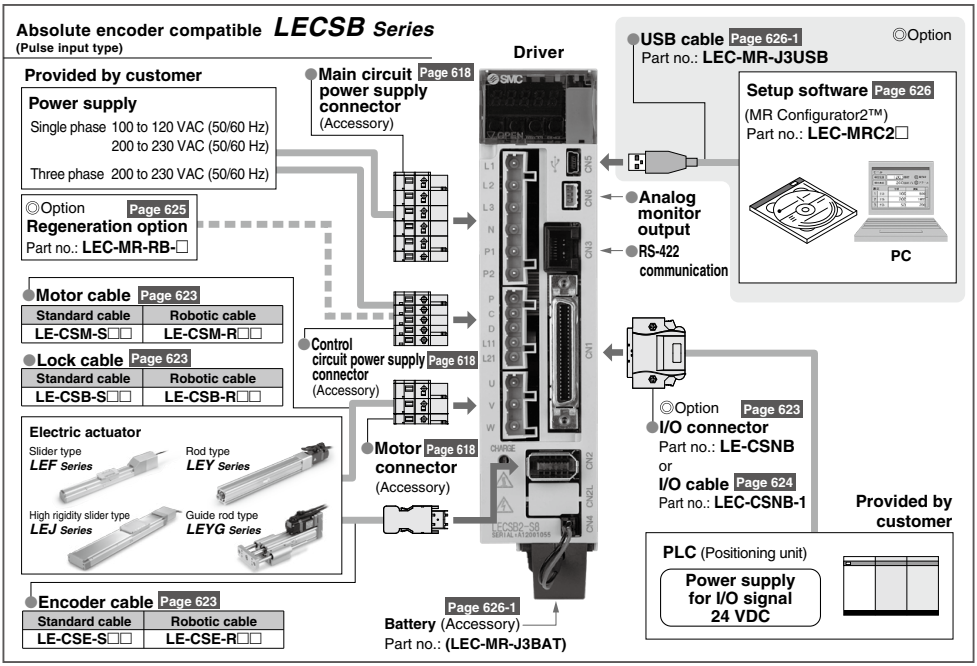
Driver status and alarm display



LECYU

System Construction





System Construction

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

Driver

Provided by customer

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

◎Option Page 625
Regeneration option
Part no.: **LEC-MR-RB-□**

Main circuit power supply connector Page 618
(Accessory)

Control circuit power supply connector Page 618
(Accessory)

Motor connector Page 618
(Accessory)

Motor cable Page 623

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

Lock cable Page 623

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

Electric actuator

Slider type
LEF Series

Rod type
LEY Series

High rigidity slider type
LEJ Series

Guide rod type
LEYG Series

Encoder cable Page 623

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

Battery (Accessory) Page 626-1
Part no.: **(LEC-MR-J3BAT)**

USB cable Page 626-1
Part no.: **LEC-MR-J3USB**

◎Option

Setup software Page 626
(MR Configurator2™)
Part no.: **LEC-MRC2□**

PC

RS-422 communication

CC-Link connector Note)
(Accessory)

◎Option Page 623
I/O connector
Part no.: **LE-CSNA**
or
I/O cable Page 624
Part no.: **LEC-CSNA-1**

Provided by customer

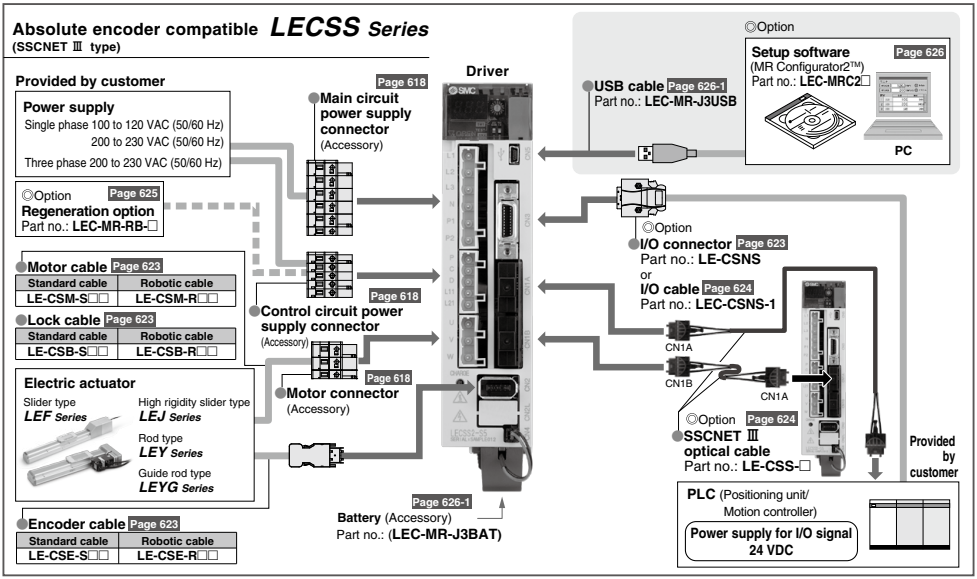
PLC (CC-Link master unit)

Power supply for I/O signal 24 VDC

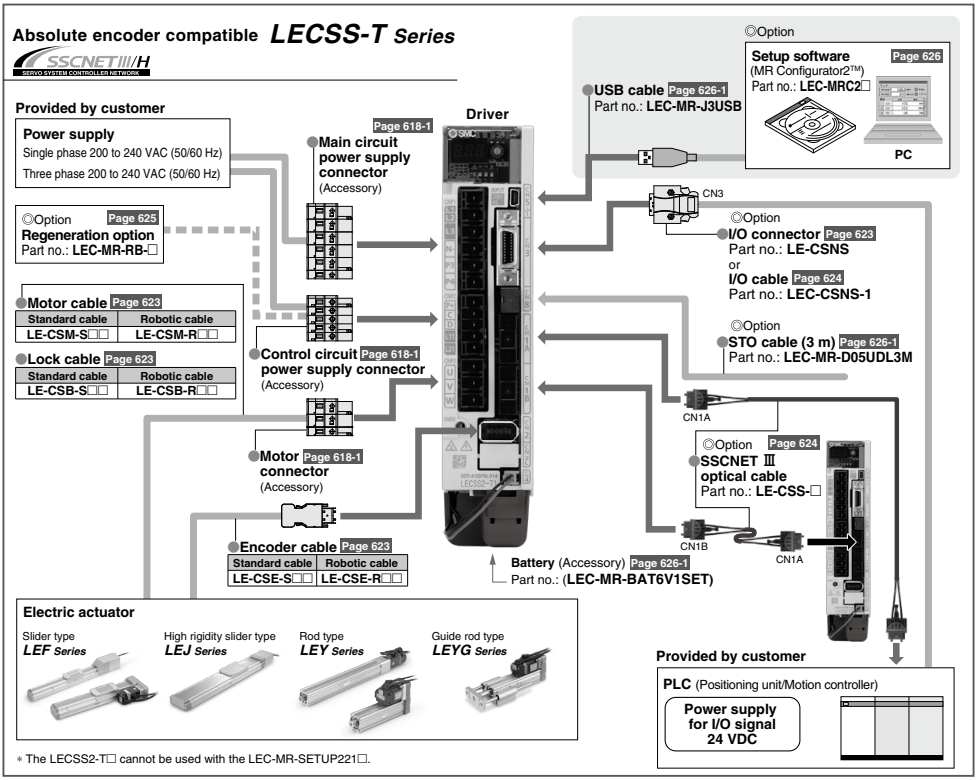
Note) Product number: K05A50230600 manufactured by Mitsubishi Electric System & Service Co., Ltd.

System Construction

Absolute encoder compatible *LECSS Series*
(SSCNET Ⅲ type)



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

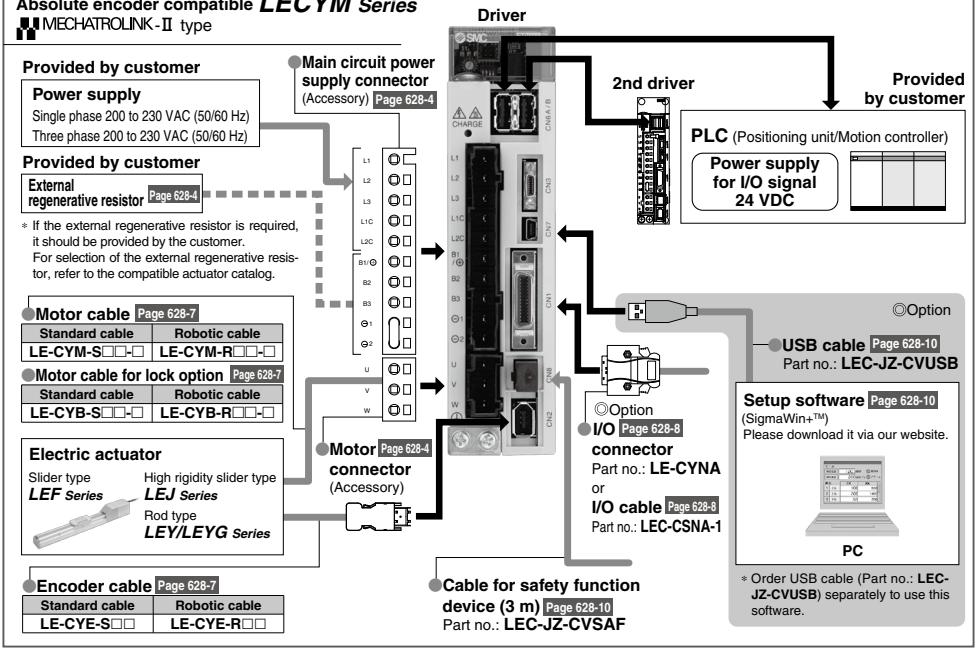


∗ The LECSS2-T□ cannot be used with the LEC-MR-SETUP221□.

System Construction

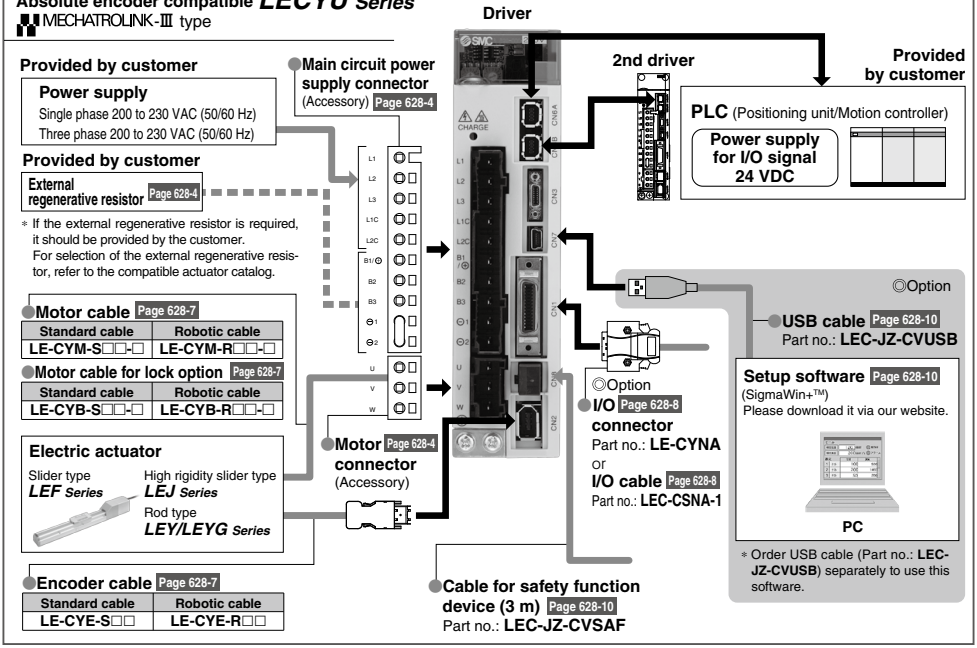
Absolute encoder compatible *LECYM Series*

MECHATROLINK-Ⅱ type



Absolute encoder compatible *LECYU Series*

MECHATROLINK-Ⅲ type



AC Servo Motor Driver

LECS□ Series

Power supply voltage	100 to 120 VAC 200 to 230 VAC
Motor capacity	100/200/400 W

Incremental Type

LECSA Series (Pulse input type/ Positioning type)

- **Up to 7 positioning points by point table**
- **Input type:** Pulse input
- **Control encoder:** Incremental 17-bit encoder (Resolution: 131,072 pulse/rev)
- **Parallel input:** 6 inputs
  output: 4 outputs

Absolute Type

LECSB Series (Pulse input type)

- **Input type:** Pulse input
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262,144 pulse/rev)
- **Parallel input:** 10 inputs
  output: 6 outputs

LECSC Series (CC-Link direct input type)

CC-Link

- **Position data/speed data setting and operation start/stop**
- **Positioning by up to 255 point tables (when 2 stations occupied)**
- **Up to 32 drivers connectable (when 2 stations occupied) with CC-Link communication**
- **Applicable Fieldbus protocol:** CC-Link (Ver. 1.10, Max. communication speed: 10 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262,144 pulse/rev)

LECSS Series (SSCNET Ⅲ type)

SSCNETⅢ
SERVO SYSTEM CONTROLLER NETWORK

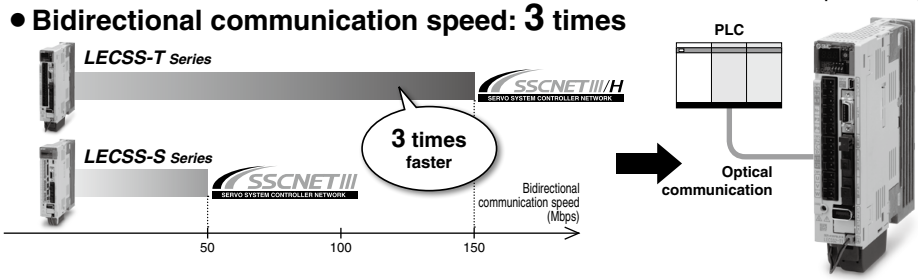
- **Compatible with Mitsubishi Electric's servo system controller network**
- **Reduced wiring and SSCNET Ⅲ optical cable for one-touch connection**
- **SSCNET Ⅲ optical cable provides enhanced noise resistance**
- **Up to 16 drivers connectable with SSCNET Ⅲ communication**
- **Applicable Fieldbus protocol:** SSCNET Ⅲ
  (High-speed optical communication, Max. bidirectional communication speed: 50 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262,144 pulse/rev)

AC Servo Motor Driver
LECSS-T Series

Power supply voltage	200 to 230 VAC
Motor capacity	100/200/400 W

SSCNET Ⅲ/H Compatible *LECSS-T Series*

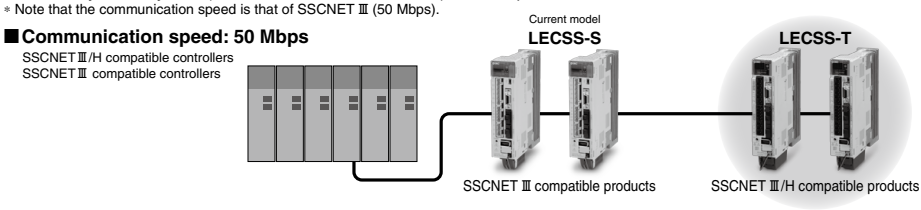
- **Applicable Fieldbus protocol:** SSCNET Ⅲ/H (High-speed optical communication, max. bidirectional communication speed: 150 Mbps)
- **Bidirectional communication speed: 3 times**



- **SSCNET Ⅲ/H and SSCNET Ⅲ products are compatible.**

SSCNET Ⅲ/H compatible products can be added to current SSCNET Ⅲ systems for system expansion. Reassembly of the system (new installation of master PLC) is not required.

∗ Note that the communication speed is that of SSCNET Ⅲ (50 Mbps).



- **Improved noise resistance**
- **STO (Safe Torque Off) safety function available**
- **Control encoder: Absolute 22-bit encoder (Resolution: 4,194,304 p/rev)**

Absolute Type

LECSS-T Series (SSCNET Ⅲ/H type)

SSCNET Ⅲ/H

- **Applicable Fieldbus protocol**: SSCNET Ⅲ/H (High-speed optical communication, max. bidirectional communication speed: 150 Mbps)
- **Bidirectional communication speed**: 3 times
- **SSCNET Ⅲ/H and SSCNET Ⅲ products are compatible.**
- **Improved noise resistance**
- **STO (Safe Torque Off) safety function available**
- **Control encoder**: Absolute 22-bit encoder (Resolution: 4,194,304 p/rev)

AC Servo Motor Driver

LECY□ Series

Power supply voltage	200 to 230 VAC
Motor capacity	100/200/400 W

Absolute Type

LECYM Series (MECHATROLINK-Ⅱ type)

MECHATROLINK-Ⅱ

- **Applicable Fieldbus protocol**: MECHATROLINK-Ⅱ
- **Number of connectable drivers**: 30 units (Transmission distance: Max. 50 m in total)
- **Max. transmission speed**: 10 Mbps
- **Min. transmission cycle**: 250 µs
- **Control encoder**: Absolute 20-bit encoder (Resolution: 1,048,576 p/rev)
- **STO (Safe Torque Off) safety function available**
- **Compliant with the SEMI F47 Standard (Torque limit for low DC power supply voltage for main circuit)**

LECYU Series (MECHATROLINK-Ⅲ type)

MECHATROLINK-Ⅲ

- **Applicable Fieldbus protocol**: MECHATROLINK-Ⅲ
- **Number of connectable drivers**: 62 units (Transmission distance: Max. 75 m between stations)
- **Max. transmission speed**: 100 Mbps
- **Min. transmission cycle**: 125 µs
- **Control encoder**: Absolute 20-bit encoder (Resolution: 1,048,576 p/rev)
- **STO (Safe Torque Off) safety function available**
- **Compliant with the SEMI F47 Standard (Torque limit for low DC power supply voltage for main circuit)**

Compatible actuators

LEF LEJ LEY

AC Servo Motor Driver

Incremental Type

***LECSA* Series** (Pulse Input Type/Positioning Type)

Absolute Type

LECSB (Pulse Input Type)***/LECSC*** (CC-Link Direct Input Type)

LECSS (SSCNET Ⅲ Type)***/LECSS-T*** (SSCNET Ⅲ/H Type) ***Series***

LECSA LECSB LECSC LECSS LECSS-T

CE c UL us LISTED ∗ LECSS-T only RoHS

How to Order

LECSA/LECSB/LECSC/LECSS

LECS A 1 – S1

Driver type

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

Power supply voltage

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

Compatible motor type

Symbol	Type	Capacity	Encoder
S1	AC servo motor (S2∗1)	100 W	Incremental
S3	AC servo motor (S3∗1)	200 W	
S4	AC servo motor (S4∗1)∗2	400 W	
S5	AC servo motor (S6∗1)	100 W	Absolute
S7	AC servo motor (S7∗1)	200 W	
S8	AC servo motor (S8∗1)∗2	400 W	

∗1 The symbol shows the motor type (actuator).
∗2 Only available for power supply voltage "200 to 230 VAC".

∗ **If I/O connector (CN1) is required, order the part number "LE-CSN□" separately.**
∗ **If I/O cable (CN1) is required, order the part number "LEC-CSN□-1" separately.**
(Since the electric actuator will not operate without emergency stop (EMG) wiring for the LECSB, an I/O connector or an I/O cable is required.)

LECSS-T

LECS S 2 – T5

Driver type

S	SSCNET Ⅲ/H type (For absolute encoder)

Power supply voltage

2	200 to 240 VAC, 50/60 Hz

Compatible motor type

Symbol	Type	Capacity	Encoder
T5	AC servo motor (T6∗1)	100 W	Absolute
T7	AC servo motor (T7∗1)	200 W	
T8	AC servo motor (T8∗1)	400 W	

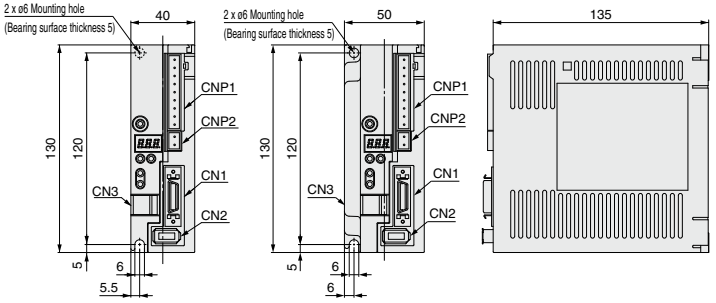
∗1 The symbol shows the motor type (actuator).

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

Dimensions

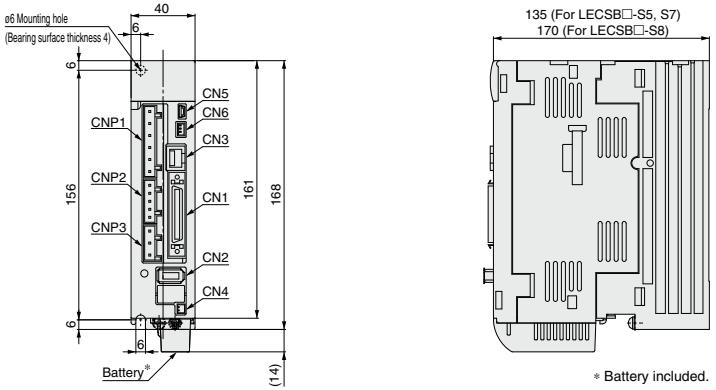
LECSA□

For LECSA□-S1,S3 **For LECSA□-S4**



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

LECSB□

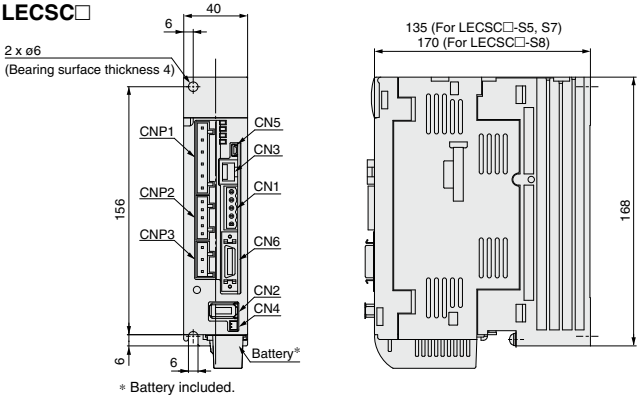


Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3	RS-422 communication connector
CN4	Battery connector
CN5	USB communication connector
CN6	Analog monitor connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

∗ Battery included.

Dimensions

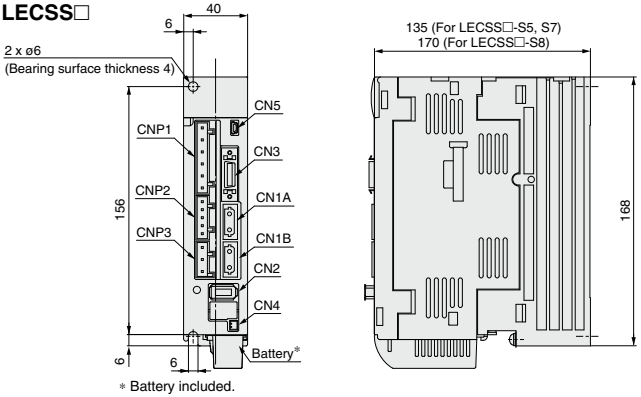
LECSC□



∗ 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

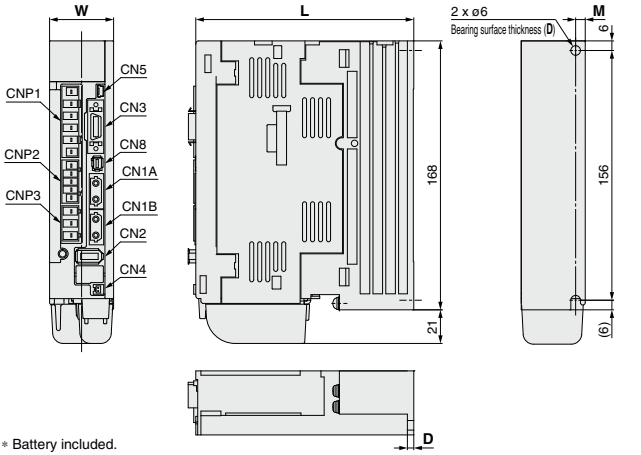
LECSS□



∗ Battery included.

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

LECSS2-T□



∗ 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-T5	40	135	4	6
LECSS2-T7				
LECSS2-T8		170	5	

Specifications

LECSA Series

Model		LECSA1-S1	LECSA1-S3	LECSA2-S1	LECSA2-S3	LECSA2-S4
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Incremental 17-bit encoder (Resolution: 131,072 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 fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]	3.0	5.0	1.5	2.4	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)*2				
Function	**In-position range setting [pulse]**	0 to ±65535 (Command pulse unit)				
	Error excessive	±3 rotations				
	Torque limit	Parameter setting				
	Communication	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)				
Weight [g]		600				700

LECSB Series

Model		LECSB1-S5	LECSB1-S7	LECSB2-S5	LECSB2-S7	LECSB2-S8
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Absolute 18-bit encoder (Resolution: 262,144 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 fluctuation [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC		
	Rated current [A]	3.0	5.0	0.9	1.5	2.6
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 fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]	0.4		0.2		
Parallel input		10 inputs				
Parallel output		6 outputs				
Max. input pulse frequency [pps]		1 M (for differential receiver), 200 k (for open collector)*2				
Function	**In-position range setting [pulse]**	0 to ±10000 (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				
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]		800				1000

*1 USB communication and RS422 communication cannot be performed at the same time.
*2 If the command pulse train input is open collector method, it supports only to the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

Specifications

LECSC Series

Model			LECSC1-S5	LECSC1-S7	LECSC2-S5	LECSC2-S7	LECSC2-S8
Compatible motor capacity [W]			100	200	100	200	400
Compatible encoder			Absolute 18-bit encoder (Resolution: 262,144 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 fluctuation [V]		Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC		
	Rated current [A]		3.0	5.0	0.9	1.5	2.6
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 fluctuation [V]		Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]		0.4		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]	16 k	625 k	2.5 M	5 M	10 M
		Maximum overall cable length [m]	1200	900	400	160	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]			800				1000

*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 Series

Model		LECSS1-S5	LECSS1-S7	LECSS2-S5	LECSS2-S7	LECSS2-S8
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Absolute 18-bit encoder (Resolution: 262,144 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 fluctuation [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC		
	Rated current [A]	3.0	5.0	0.9	1.5	2.6
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 fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]	0.4		0.2		
Applicable Fieldbus protocol		SSCNET Ⅲ (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)				
Weight [g]		800				1000

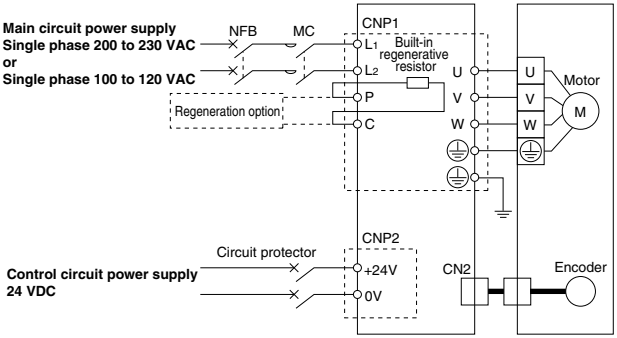
Specifications

LECSS-T Series

Model		LECSS2-T5	LECSS2-T7	LECSS2-T8
Compatible motor capacity [W]		100	200	400
Compatible encoder		Absolute 22-bit encoder (Resolution: 4,194,304 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]	0.9	1.5	2.6
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)		
Weight [g]		800		1000

Power Supply Wiring Example: LECSA

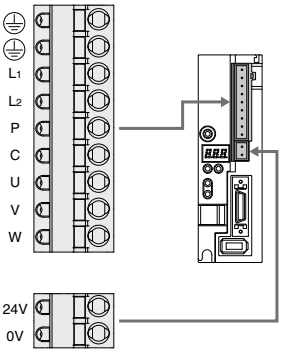
LECSA□-□



Main Circuit Power Supply Connector: CNP1

∗ Accessory

Terminal name	Function	Details
⏚	Protective earth (PE)	Should be grounded by connecting the servo motor's earth terminal and the control panel's protective earth (PE).
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: Not connected at time of shipping. 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)	



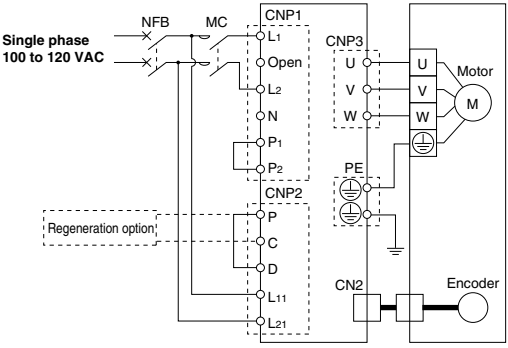
Control Circuit Power Supply Connector: CNP2

∗ Accessory

Terminal name	Function	Details
24V	Control circuit power supply (24 V)	24 V side of the control circuit power supply (24 VDC) supplied to the driver
0V	Control circuit power supply (0 V)	0 V side of the control circuit power supply (24 VDC) supplied to the driver

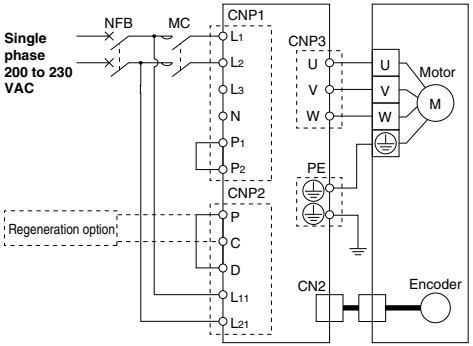
Power Supply Wiring Example: LECSB, LECSC, LECSS

LECSB1-□
LECSC1-□
LECSS1-□

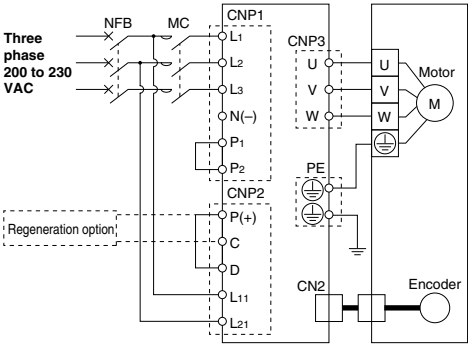


LECSB2-□
LECSC2-□
LECSS2-□

For single phase 200 VAC



For three 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	Details
L_1	Main circuit power supply	Connect the main circuit power supply. LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_1,L_2 LECSB2/LECSC2/LECSS2: 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	Do not connect.	
P_1	Connect between P_1 and P_2. (Connected at time of shipping.)	
P_2		

Control Circuit Power Supply Connector: CNP2

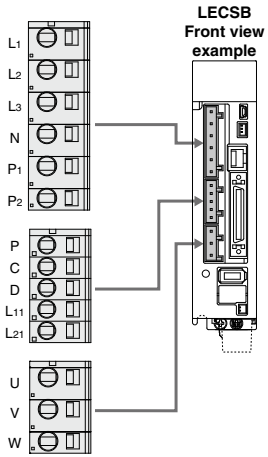
∗ Accessory

Terminal name	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	Connect the control circuit power supply. LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_{11},L_{21}
L_{21}		

Motor Connector: CNP3

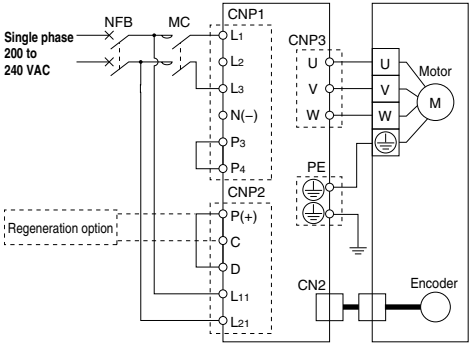
∗ Accessory

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

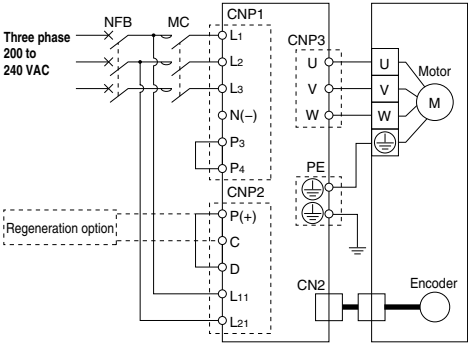


Power Supply Wiring Example: LECSS2-T□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 240 VAC, power supply should be connected to L_1 and L_3 terminals, with nothing connected to L_2. Please note that the wiring locations differ from the LECS□.

Main Circuit Power Supply Connector: CNP1

∗ Accessory

Terminal name	Function	Details
L_1	Main circuit power supply	Connect the main circuit power supply. LECSS2: Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L_1,L_3 Three phase 200 to 240 VAC, 50/60 Hz Connection terminal: L_1,L_2,L_3
L_2		
L_3		
N(–)	Do not connect.	
P_3	Connect between P_3 and P_4. (Connected at time of shipping.)	
P_4		

Control Circuit Power Supply Connector: CNP2

∗ Accessory

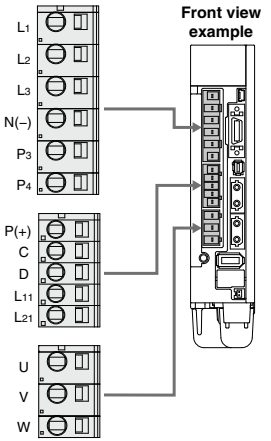
Terminal name	Function	Details
P(+)	Regeneration option	Connect between P(+) and D. (Connected at time of shipping.) ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
D		
L_{11}	Control circuit power supply	Connect the control circuit power supply. LECSS2: Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} Three phase 200 to 240 VAC, 50/60 Hz Connection terminal: L_{11},L_{21}
L_{21}		

Motor Connector: CNP3

∗ Accessory

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

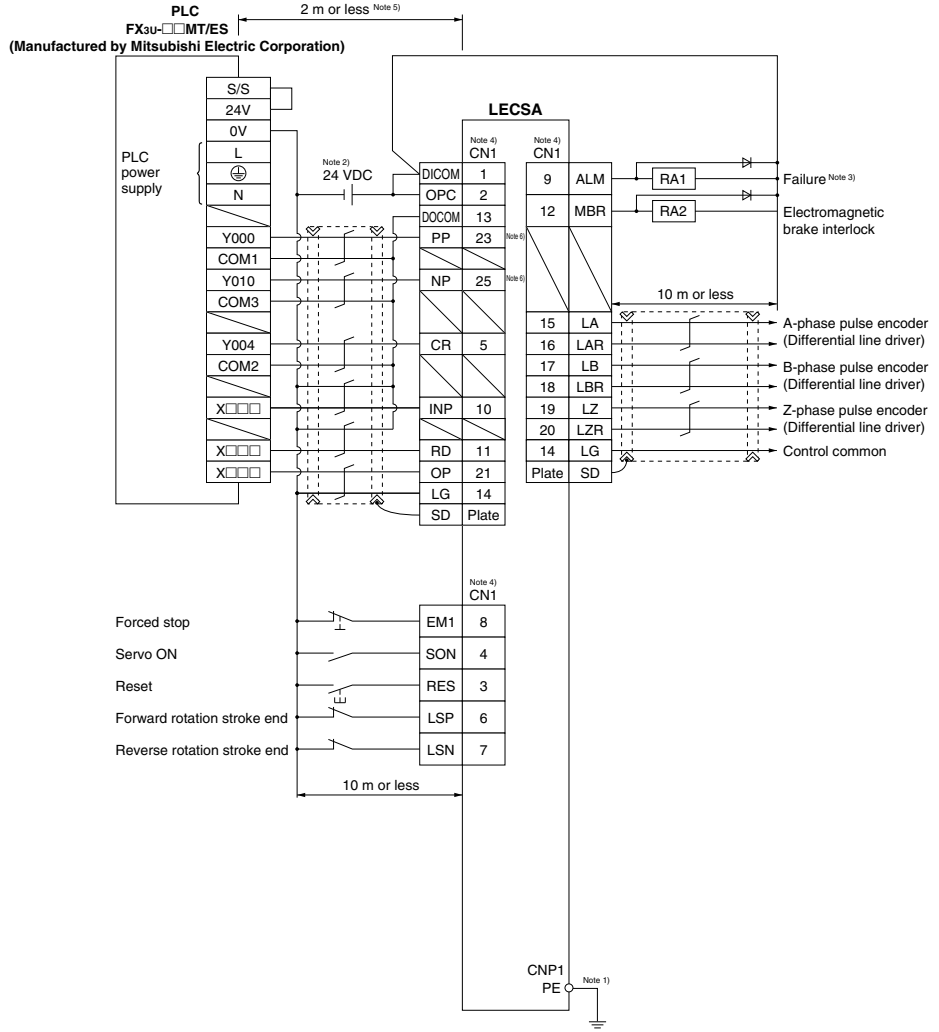
LECSS2-T□ Front view example



Control Signal Wiring Example: LECSA

LECSA□-□

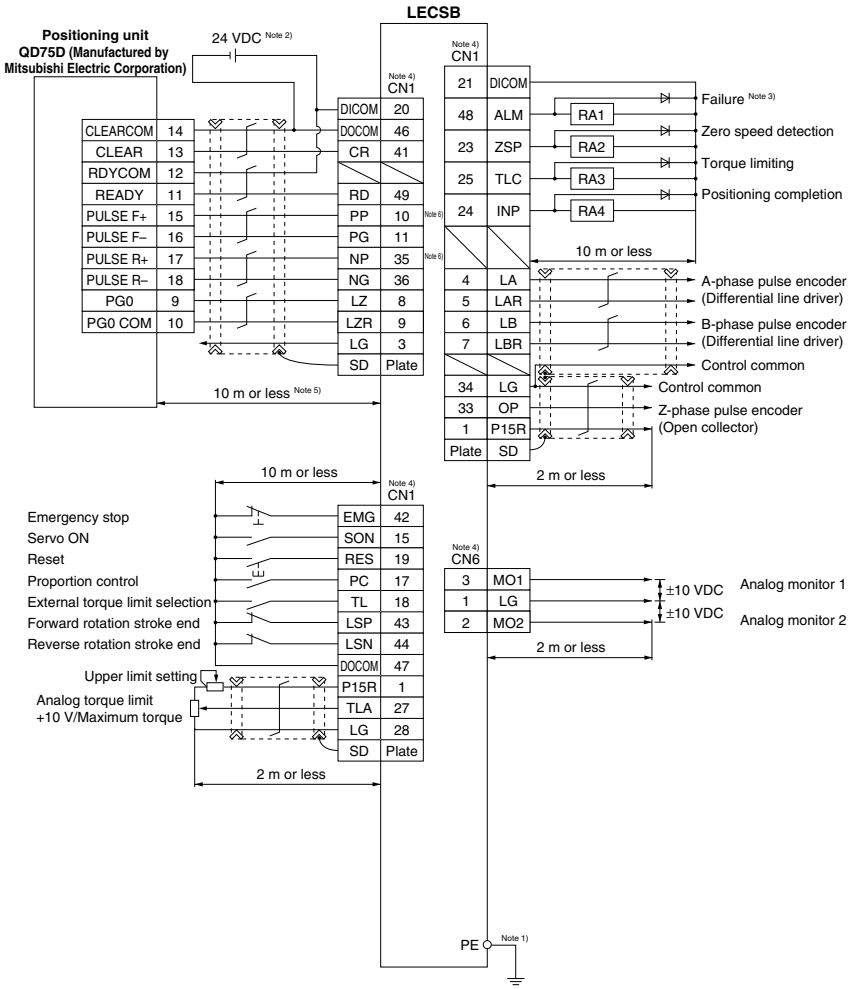
This wiring example shows connection with a PLC (FX3U-□□MT/ES) manufactured by Mitsubishi Electric Corporation as when used in position control mode. Refer to the LECSA series Operation Manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another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



Note 1) For preventing electric shock, be sure to connect the driver main circuit power supply connector (CNP1)'s protective earth (PE) terminal (marked ⏚) 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 PLC signal using the sequence program.
Note 4) The same name signals are connected inside the driver.
Note 5) For command pulse input with an open collector method. When a positioning unit loaded with a differential line driver method is used, it is 10 m or less.
Note 6) If the command pulse train input is open collector method, it supports only to the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

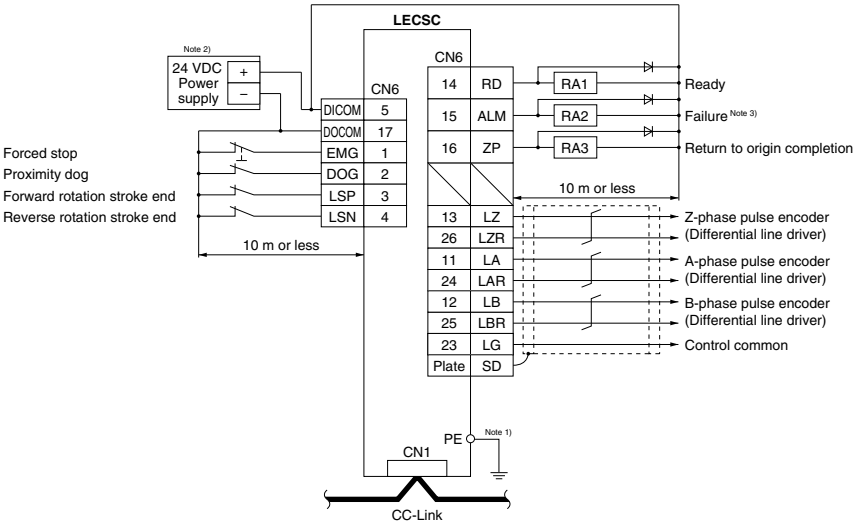
Control Signal Wiring Example: LECSB

This wiring example shows connection with a positioning unit (QD75D) manufactured by Mitsubishi Electric Corporation as when used in position control mode. Refer to the LECSB series Operation Manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.



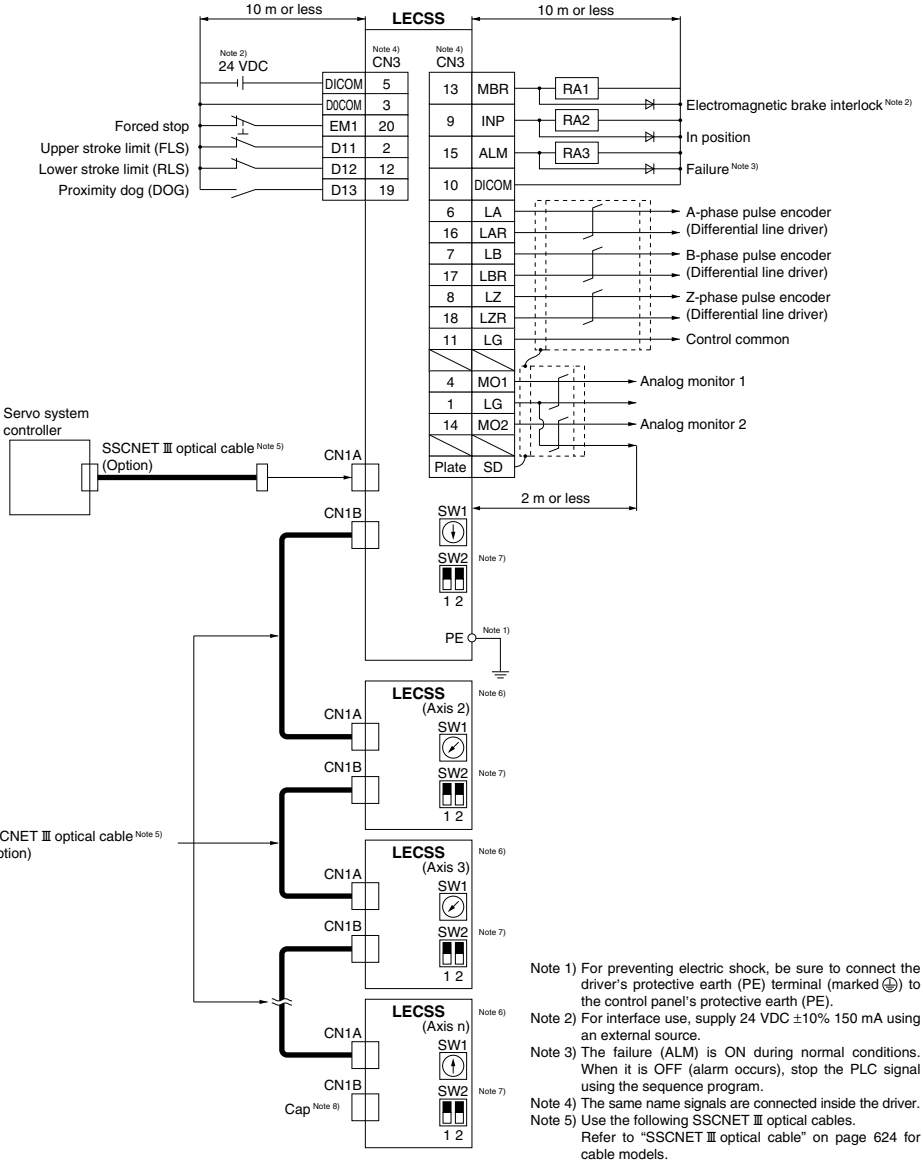
Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ⏚) to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 300 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the PLC signal using the sequence program.
Note 4) The same name signals are connected inside the driver.
Note 5) For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.
Note 6) If the command pulse train input is open collector method, it supports only to the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

Control Signal Wiring Example: LECSC



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

Control Signal Wiring Example: LECSS



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

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

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

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

Note 5) Use the following SSCNET Ⅲ optical cables.
Refer to "SSCNET Ⅲ optical cable" on page 624 for cable models.

Cable	Cable model	Cable length
SSCNET Ⅲ optical cable	**LE-CSS-□**	0.15 m to 3 m

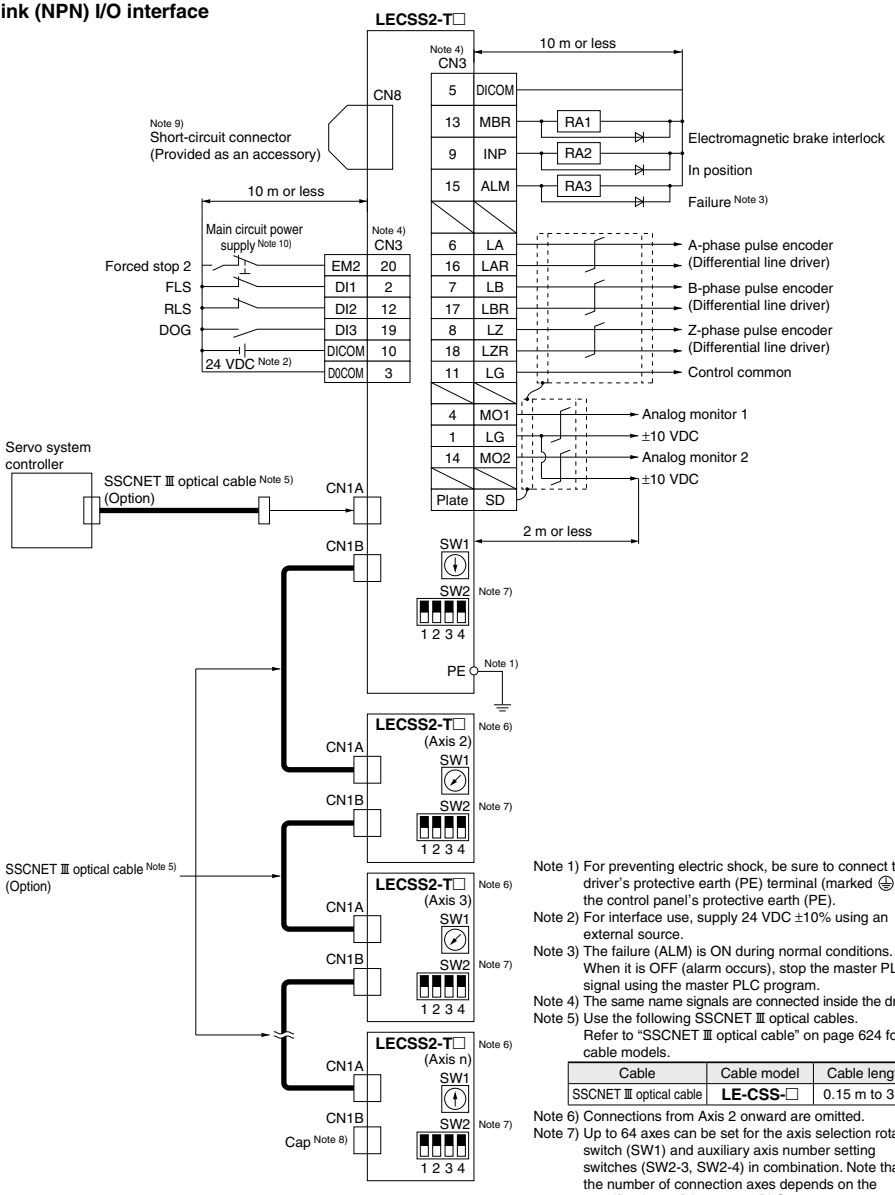
Note 6) Connections from Axis 2 onward are omitted.

Note 7) Up to 16 axes can be set.

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

Control Signal Wiring Example: LECSS2-T□

For sink (NPN) I/O interface



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

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

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

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

Note 5) Use the following SSCNET Ⅲ optical cables. Refer to "SSCNET Ⅲ optical cable" on page 624 for cable models.

Cable	Cable model	Cable length
SSCNET Ⅲ optical cable	**LE-CSS-□**	0.15 m to 3 m

Note 6) Connections from Axis 2 onward are omitted.

Note 7) Up to 64 axes can be set for the axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-3, SW2-4) in combination. Note that the number of connection axes depends on the specifications of the master PLC.

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

Note 9) When not using the STO function, use the driver with the short-circuit connector (provided as an accessory) inserted.

Note 10) Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent an unexpected restart of the driver.

Options

Motor cable, Lock cable, Encoder cable (LECS□, LECSS-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

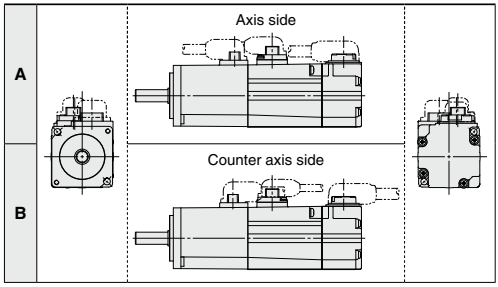
Cable type

S	Standard cable
R	Robotic cable

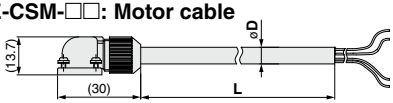
Cable length (L) [m]

2	2
5	5
A	10

Direction of connector



LE-CSM-□□: Motor cable

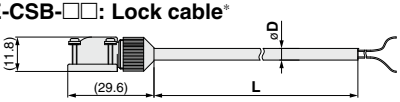


Product no.	øD
LE-CSM-S□A	6.2
LE-CSM-S□B	
LE-CSM-R□A	5.7
LE-CSM-R□B	

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*

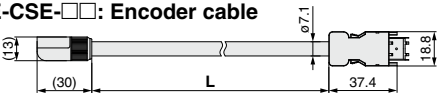


Product no.	øD
LE-CSB-S□A	4.7
LE-CSB-S□B	
LE-CSB-R□A	4.5
LE-CSB-R□B	

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

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

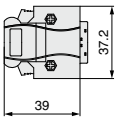
I/O connector (Without cable, Connector only)

LE − CSN A

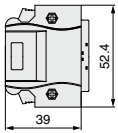
Driver type

A	LECSA□, LECSC□
B	LECSB□
S	LECSS□-S□/LECSS2-T□

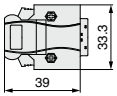
LE-CSNA



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

* Applicable conductor size: AWG24 to 30
* If using the LECSB, emergency stop (EMG) 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 (LECSS□-S□, 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

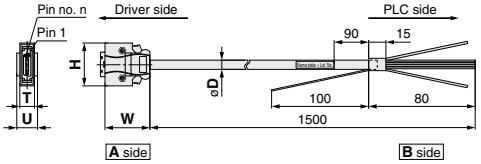
A	**LECSA□, LECSC□**
B	**LECSB□**
S	**LECSS□-S□, LECSS2-T□**

Cable length (L) [m]

1	1.5

Weight

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



∗ LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent item.
LEC-CSNB-1: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent item.
LEC-CSNS-1: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent item.
∗ Conductor size: AWG24
∗ If using the LECSB, emergency stop (EMG) 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 No.

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 no. 1 to 26
LEC-CSNB-1: Pin no. 1 to 50
LEC-CSNS-1: Pin no. 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	▬ ▬ ▬ ▬ ▬	Red
	42			▬ ▬ ▬ ▬ ▬	Black
	43	22	Light gray	▬ ▬ ▬ ▬ ▬	Red
	44			▬ ▬ ▬ ▬ ▬	Black
	45	23	White	▬ ▬ ▬ ▬ ▬	Red
	46			▬ ▬ ▬ ▬ ▬	Black
	47	24	Yellow	▬ ▬ ▬ ▬ ▬	Red
	48			▬ ▬ ▬ ▬ ▬	Black
	49	25	Pink	▬ ▬ ▬ ▬ ▬	Red
	50			▬ ▬ ▬ ▬ ▬	Black

Options

Regeneration option (LECS□ common)

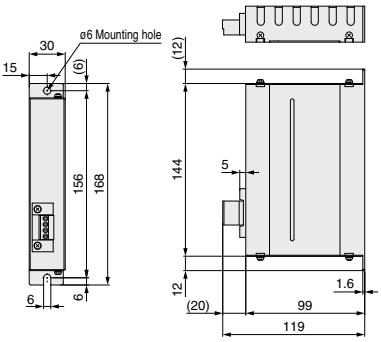
LEC – MR – RB – 12

Regeneration option type

032	Allowable regenerative power 30 W
12	Allowable regenerative power 100 W

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

LEC-MR-RB-032

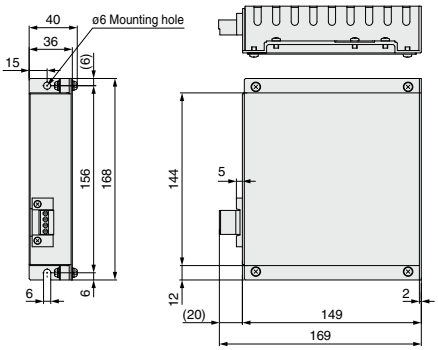


Weight

Model	Weight [kg]
LEC-MR-RB-032	0.5

∗ MR-RB032 manufactured by Mitsubishi Electric Corporation.

LEC-MR-RB-12



Weight

Model	Weight [kg]
LEC-MR-RB-12	1.1

∗ MR-RB12 manufactured by Mitsubishi Electric Corporation.

Options

LECSA LECSB LECSC LECSS LECSS2-T□
Drivers

USB cable

PC

Setup software
(MR Configurator2™)

Setup software (MR Configurator2™) (LECSA, LECSB, LECSC, LECSS, LECSS-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 read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (MR Configurator2™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

Equipment		Setup software (MR Configurator2™) **LEC-MRC2□**
Note 1) 2) 3) 4) 5) 6) 7) 8) 9) 10) PC	OS	Microsoft® Windows® 10 Edition Operating System Microsoft® Windows® 10 Enterprise Operating System Microsoft® Windows® 10 Pro Operating System Microsoft® Windows® 10 Home Operating System Microsoft® Windows® 8.1 Enterprise Operating System Microsoft® Windows® 8.1 Pro Operating System Microsoft® Windows® 8.1 Operating System Microsoft® Windows® 8 Enterprise Operating System Microsoft® Windows® 8 Pro Operating System Microsoft® Windows® 8 Operating System Microsoft® Windows® 7 Ultimate Operating System Microsoft® Windows® 7 Enterprise Operating System Microsoft® Windows® 7 Professional Operating System Microsoft® Windows® 7 Home Premium Operating System Microsoft® Windows® 7 Starter Operating System Microsoft® Windows Vista® Ultimate Operating System Microsoft® Windows Vista® Enterprise Operating System Microsoft® Windows Vista® Business Operating System Microsoft® Windows Vista® Home Premium Operating System Microsoft® Windows Vista® Home Basic Operating System Microsoft® Windows® XP Professional Operating System, Service Pack 3 or later Microsoft® Windows® XP Home Edition Operating System, Service Pack 3 or later
	Hard disk	1 GB or more of free space
	Communication interface	Use USB port.
Display		Resolution 1024 x 768 or more Must be capable of high color (16-bit) 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
USB cable Note 11)		LEC-MR-J3USB

Note 1) Before using a PC for setting LECSA point table method/program operation method, upgrade to version 1.18U (Japanese version)/ version 1.19V (English version) or later. Refer to Mitsubishi Electric Corporation's website for version upgrade information.
Note 2) Windows® and Windows Vista® are registered trademarks of Microsoft Corporation in the United States and other countries.
Note 3) On some PCs, setup software (MR Configurator2™) may not run properly.
Note 4) The following functions cannot be used. If any of the following functions is used, this product may not operate normally.
· Start of application in Windows® compatible mode
· Fast User Switching
· Remote Desktop
· Windows XP Mode
· Windows Touch or Touch
· Modern UI
· Client Hyper-V
· Tablet Mode
· Virtual desktop
· 64-bit OSs are not supported, except for Microsoft® Windows®7 or later.
Note 5) Multi-display is set, the screen of this product may not operate normally.
Note 6) The size of the text or other items on the screen is not changed to the specified value (96 DPI, 100%, 9 pt, etc.), the screen of this product may not operate normally.
Note 7) Changed the resolution of the screen during operating, the screen of this product may not operate normally.
Note 8) Please use by "Standard User," "Administrator" in Windows Vista® or later.
Note 9) Using a PC for setting Windows®10, upgrade to version 1.52E or later.
Using a PC for setting Windows®8.1, upgrade to version 1.25B or later.
Using a PC for setting Windows®8, upgrade to version 1.20W or later.
Refer to Mitsubishi Electric Corporation's website for version upgrade information.
Note 10) If .NET Framework 3.5 (including .NET 2.0 and 3.0) have been disabled in Windows®7 or later, it is necessary to enable it.
Note 11) Order USB cable separately.
· This cable is compatible with the setup software (MR Configurator™: LEC-MR-SETUP221□).

Setup Software Compatible Driver

Compatible driver	Setup software	
	MR Configurator™	MR Configurator2™
	LEC-MR-SETUP221□	LEC-MRC2□
LECSA	○	○
LECSB	○	○
LECSC	○	○
LECSS□-S□	○	○
LECSS2-T□	—	○

Options

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

LEC−MR−J3USB

∗ MR-J3USBCBL3M manufactured by Mitsubishi Electric Corporation.

Weight: 140 g

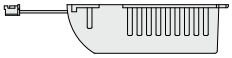
Cable for connecting PC and driver when using the setup software (MR Configurator2™).
Do not use any cable other than this cable.

Battery (only for LECSB, LECSC or LECSS)

LEC−MR−J3BAT

∗ MR-J3BAT manufactured by Mitsubishi Electric Corporation.

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



Weight: 30 g

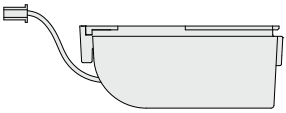
Note) The LEC-MR-J3BAT is a single battery that uses lithium metal battery ER6V.
When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations 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 transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

Battery (only for LECSS2-T□)

LEC−MR−BAT6V1SET

∗ 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

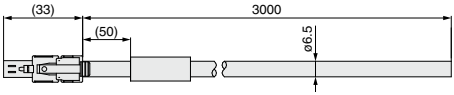
Note) The LEC-MR-BAT6V1SET is an assembled battery that uses lithium metal battery 2CR17335A.
When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in 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 transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

STO cable (3 m) (only for LECSS2-T□)

LEC−MR−D05UDL3M

∗ MR-D05UDL3M 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

Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design/Selection

⚠Warning

1. Use the specified voltage.
If the applied voltage is higher than the specified voltage, malfunction and damage to the driver may result. If the applied voltage is lower than the specified voltage, there is a possibility that the load cannot be moved due to internal voltage drop. Check the operating voltage prior to start. Also, confirm that the operating voltage does not drop below the specified voltage during operation.

2. Do not use the products outside the specifications.
Otherwise, fire, malfunction or damage to the driver/actuator can result. Check the specifications before use.

3. Install an emergency stop circuit.
Install an emergency stop outside the enclosure in easy reach to the operator so that the operator can stop the system operation immediately and intercept the power supply.

4. To prevent danger and damage due to a breakdown or malfunction of these products, which may occur at a certain probability, a backup system should be arranged in advance by using a multiple-layered structure or by making a fail-safe equipment design etc.

5. If there is a risk of fire or personal injury due to abnormal heat generation, sparking, smoke generated by the product, etc., cut off the power supply from this product and the system immediately.

6. The parameters of the driver are set to initial values. Please change parameters according to the specifications of the customer's equipment before use. Refer to the operation manual for details of parameters.

Handling

⚠Warning

1. Never touch the inside of the driver and its peripheral devices.
Otherwise, electric shock or failure can result.

2. Do not operate or set up this equipment with wet hands.
Otherwise, electric shock can result.

3. Do not use a product that is damaged or missing any components.
Electric shock, fire or injury can result.

4. Use only the specified combination between the electric actuator and driver.
Otherwise, it may cause damage to the driver or to the other equipment.

5. Be careful not to touch, get caught or hit by the workpiece while the actuator is moving.
An injury can result.

6. Do not connect the power supply or power up the product until it is confirmed that the workpiece can be moved safely within the area that can be reached by the workpiece.
Otherwise, 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.
Otherwise, it may cause burns due to the high temperature.

8. Check the voltage using a tester at least 5 minutes after power-off when performing installation, wiring and maintenance.
Otherwise, electric shock, fire or injury can result.

Handling

⚠Warning

9. Static electricity may cause a malfunction or damage the driver. Do not touch the driver while power is supplied to it.
Take sufficient safety measures to eliminate static electricity when it is necessary to touch the driver for maintenance.

10. Do not use the products in an area where they could be exposed to dust, metallic powder, machining chips or splashes of water, oil or chemicals.
Otherwise, a failure or malfunction can result.

11. Do not use the products in a magnetic field.
Otherwise, a malfunction or failure can result.

12. Do not use the products in an environment where flammable, explosive or corrosive gases, liquids or other substances are present.
Otherwise, fire, explosion or corrosion can result.

13. Avoid heat radiation from strong heat sources, such as direct sunlight or a hot furnace.
Otherwise, it will cause a failure to the driver or its peripheral devices.

14. Do not use the products in an environment with cyclic temperature changes.
Otherwise, it will cause a failure to the driver or its peripheral devices.

15. Do not use the products in an environment where surges are generated.
Devices (solenoid type lifters, high frequency induction furnaces, motors, etc.) that generate a large amount of surge around the product may lead to deterioration or damage to the internal circuits of the products. Avoid supplies of surge generation and crossed lines.

16. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

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.

Mounting

⚠Warning

1. Install the driver and its peripheral devices on fireproof material.
Direct installation on or near flammable material may cause fire.

2. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

3. The driver should be mounted on a vertical wall in a vertical direction.
Also, do not cover the driver's suction/exhaust ports.

4. Install the driver and its peripheral devices on a flat surface.
If the mounting surface is not flat or uneven, excessive force may be applied to the housing and other parts resulting in a malfunction.

LECS□ Series
Specific Product Precautions 2

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Power Supply

⚠Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.

2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

⚠Warning

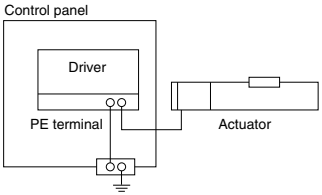
1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver's servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.

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. 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 the ground, it may be disconnected.

Maintenance

⚠Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.

2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.

3. Do not disassemble, modify or repair the driver or its peripheral devices.

4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.

5. Do not conduct an insulation resistance test or insulation withstand voltage test.

6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.

MECHATROLINK Compatible

AC Servo Motor Driver
Absolute Type
LECYM/LECYU Series

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

LECYM LECYU

CE RoHS

How to Order

Driver **LECY M 2 −** ☐

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

Compatible motor type

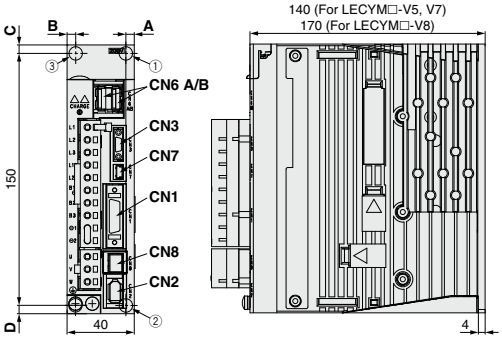
Symbol	Type	Capacity	Encoder
V5	AC servo motor (V6 ∗1)	100 W	Absolute
V7	AC servo motor (V7 ∗1)	200 W	
V8	AC servo motor (V8 ∗1)	400 W	

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

Dimensions

MECHATROLINK-Ⅱ type

LECYM2-V☐



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

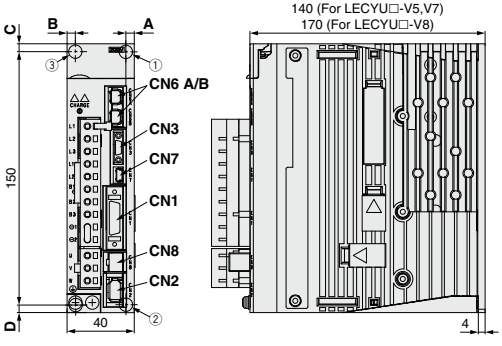
Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions A	B	C	D	Mounting hole
V5 (100 W)	①②	5	—	5	5	ø5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

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

MECHATROLINK-Ⅲ type

LECYU2-V☐



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

Note) 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
V5 (100 W)	①②	5	—	5	5	ø5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

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

Specifications

MECHATROLINK-Ⅱ Type

Model			LECYM2-V5	LECYM2-V7	LECYM2-V8
Compatible motor capacity [W]			100	200	400
Compatible encoder			Absolute 20-bit encoder (Resolution: 1,048,576 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]			0.91	1.6	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 autotuning/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)		
Weight [g]			900		1000

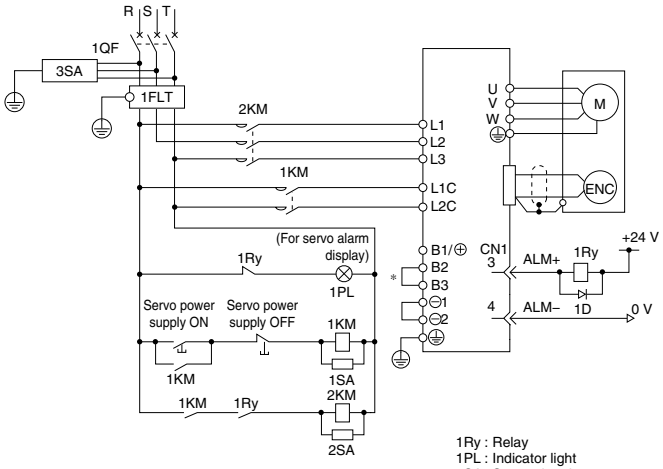
Specifications

MECHATROLINK-Ⅲ Type

Model			LECYU2-V5	LECYU2-V7	LECYU2-V8
Compatible motor capacity [W]			100	200	400
Compatible encoder			Absolute 20-bit encoder (Resolution: 1,048,576 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]			0.91	1.6	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 autotuning/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)		
Weight [g]			900		1000

Power Supply Wiring Example: LECY□

■Three phase 200 V **LECYM2-□**
LECYU2-□



1QF : Molded-case circuit breaker
1FLT: Noise filter
1KM : Magnetic contactor (for control power supply)
2KM : Magnetic contactor (for main circuit power supply)

1Ry : Relay
1PL : Indicator light
1SA: Surge absorber
2SA: Surge absorber
3SA: Surge absorber
1D : Flywheel diode

∗ For the LECY□2-V5, LECY□2-V7 and LECY□2-V8, terminals B2 and B3 are not short-circuited. Do not short-circuit these terminals.

Main Circuit Power Supply Connector ∗ Accessory

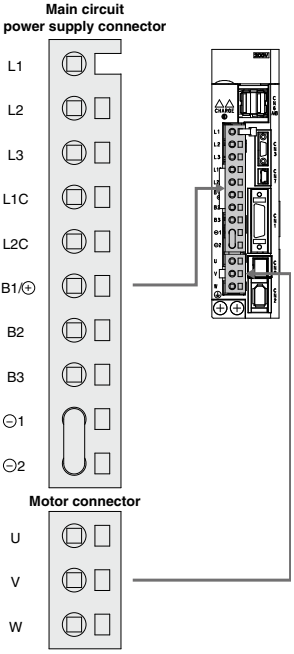
Terminal name	Function	Details
L1	Main circuit power supply	Connect the main circuit power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3
L2		
L3		
L1C	Control power supply	Connect the control power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1C, L2C
L2C		
B1/⊕	External regenerative resistor connection terminal	When the regenerative resistor is required, connect it between terminals B1⊕ and B2.
B2		
B3		
⊖1	Main circuit negative terminal	⊖1 and ⊖2 are connected at shipment.
⊖2		

Motor Connector ∗ Accessory

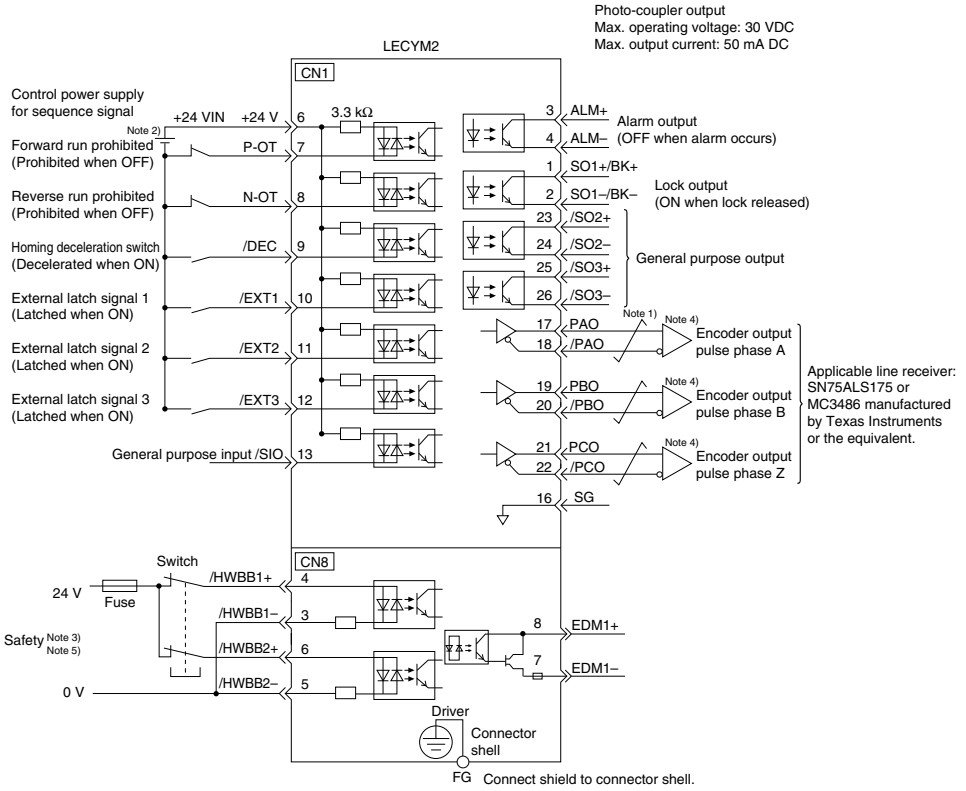
Terminal name	Function	Details
U	Servo motor power (U)	Connect to motor cable (U, V, W).
V	Servo motor power (V)	
W	Servo motor power (W)	

Power Supply Wire Specifications

Item	Specifications
Applicable wire size	L1, L2, L3, L1C, L2C Single wire, Twisted wire, AWG14 (2.0 mm^2)
Stripped wire length	8 to 9 mm



Control Signal Wiring Example: LECYM



Note 1) ≠ shows twisted-pair wires.

Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

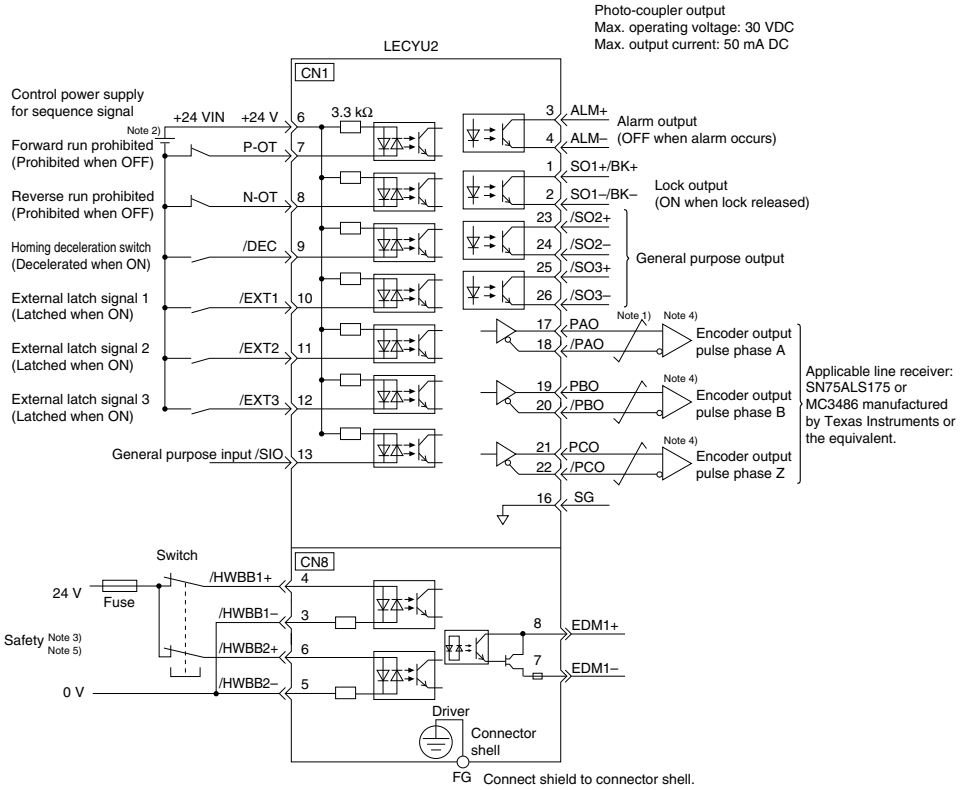
Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Note 5) It is a safety function equivalent to the STO function (IEC 61800-5-2) using the hard wire base block function (HWBB).

Control Signal Wiring Example: LECYU



Note 1) ≠ shows twisted-pair wires.

Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Note 5) It is a safety function equivalent to the STO function (IEC 61800-5-2) using the hard wire base block function (HWBB).

Options

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

LE−CY M − S 5 A − 5

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]

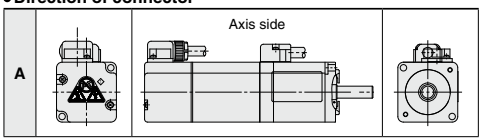
3	3
5	5
A	10
C	20

Motor capacity

5	100 W
7	200/400 W

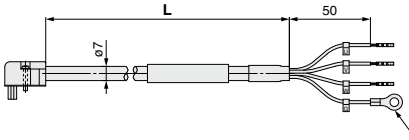
∗ For encoder cable, the suffix "–□" (Motor capacity) is not necessary.

Direction of connector



∗ The cable entry direction is axis side only.

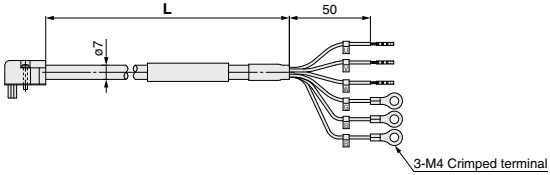
LE-CYM-□□A-□: Motor cable



Weight

Product no.	Length [m]	Weight [g]	Note
LE-CYM-S3A-5	3	250	100 W
LE-CYM-S5A-5	5	390	
LE-CYM-SAA-5	10	750	
LE-CYM-SCA-5	20	1500	
LE-CYM-S3A-7	3	250	200/ 400 W
LE-CYM-S5A-7	5	390	
LE-CYM-SAA-7	10	750	
LE-CYM-SCA-7	20	1500	
LE-CYM-R3A-5	3	220	100 W
LE-CYM-R5A-5	5	350	
LE-CYM-RAA-5	10	670	
LE-CYM-RCA-5	20	1300	
LE-CYM-R3A-7	3	220	200/ 400 W
LE-CYM-R5A-7	5	350	
LE-CYM-RAA-7	10	670	
LE-CYM-RCA-7	20	1300	

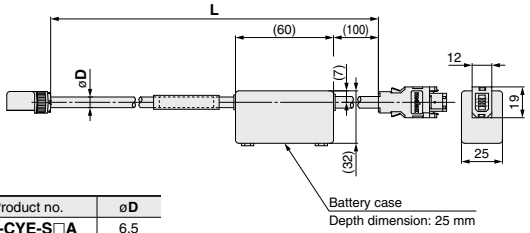
LE-CYB-□□A-□: Motor cable for lock option



Weight

Product no.	Length [m]	Weight [g]	Note
LE-CYB-S3A-5	3	240	100 W
LE-CYB-S5A-5	5	390	
LE-CYB-SAA-5	10	750	
LE-CYB-SCA-5	20	1490	
LE-CYB-S3A-7	3	240	200/ 400 W
LE-CYB-S5A-7	5	390	
LE-CYB-SAA-7	10	750	
LE-CYB-SCA-7	20	1490	
LE-CYB-R3A-5	3	220	100 W
LE-CYB-R5A-5	5	350	
LE-CYB-RAA-5	10	670	
LE-CYB-RCA-5	20	1300	
LE-CYB-R3A-7	3	220	200/ 400 W
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.	øD
LE-CYE-S□A	6.5
LE-CYE-R□A	6.8

Weight

Product no.v	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

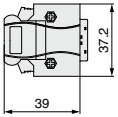
I/O connector (Without cable, Connector only)

LE − CYN A

Driver type

A	LECYM2, LECYU2

LE-CYNA



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

I/O cable

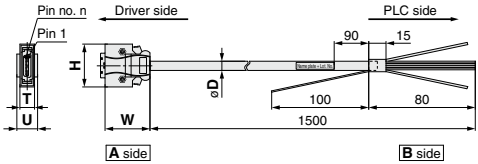
LEC − CSN A − 1

Driver type

A	LECYM2, LECYU2

Cable length (L) [m]

1	1.5



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

Wiring

LEC-CSNA-1: Pin no. 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

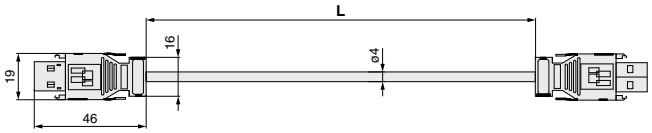
Cable length (L)

L＊	0.2 m
J	0.5 m
1	1 m
3	3 m

＊ 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.

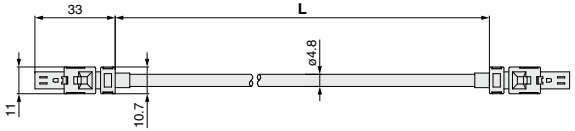
MECHATROLINK-Ⅱ cable



Weight

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

MECHATROLINK-Ⅲ cable



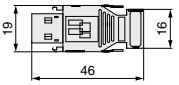
Weight

Product no.	Length [m]	Weight [g]
LE-CYU-L	0.2	21
LE-CYU-J	0.5	41
LE-CYU-1	1	75
LE-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 read/write, and test operation can be performed upon a PC.

Compatible PC

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

Hardware Requirements

Equipment		Setup software (SigmaWin+™)
PC Note 1) 2) 3) 4)	OS	Windows® XP Note 5), Windows Vista®, Windows® 7 (32-bit/64-bit)
	Available HD space	350 MB or more (When the software is installed, 400 MB or more is recommended.)
	Communication interface	Use USB port.
Display		XVGA monitor (1024 x 768 or more, "The small font is used.") 256 color or more (65536 color or more is recommended.) 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
USB cable		LEC-JZ-CVUSB Note 6)
Other		Adobe Reader Ver. 5.0 or higher (∗ Except Ver. 6.0)

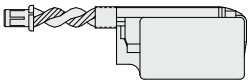
Note 1) Windows, Windows Vista®, Windows® 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 2) On some PCs, this software may not run properly.
Note 3) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.
Note 4) For Windows® XP, please use it by the administrator authority (When installing and using it.).
Note 5) In PC that uses the program to correct the problem of HotfixQ328310, it is likely to fail in the installation. In that case, please use the program to correct the problem of HotfixQ329623.
Note 6) Order USB cable separately.

Battery (LECYM/LECYU common)

LEC−JZ−CVBAT

∗ JZSP-BA01 manufactured by YASKAWA CONTROLS CO., LTD.

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



Weight: 10 g

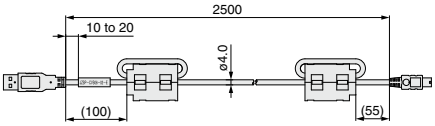
Note) The LEC-JZ-CVBAT is a single battery that uses lithium metal battery ER3V.
When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations 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 transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

USB cable (2.5 m)

LEC−JZ−CVUSB

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

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



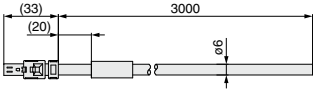
Weight: 150 g

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

LECYM/LECYU Series
AC Servo Motor Driver/ Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design/Selection

⚠Warning

1. Use the specified voltage.
If the applied voltage is higher than the specified voltage, malfunction and damage to the driver may result. If the applied voltage is lower than the specified voltage, there is a possibility that the load cannot be moved due to internal voltage drop. Check the operating voltage prior to start. Also, confirm that the operating voltage does not drop below the specified voltage during operation.

2. Do not use the products outside the specifications.
Otherwise, fire, malfunction or damage to the driver/actuator can result. Check the specifications before use.

3. Install an emergency stop circuit.
Install an emergency stop outside the enclosure in easy reach to the operator so that the operator can stop the system operation immediately and intercept the power supply.

4. To prevent danger and damage due to a breakdown or malfunction of these products, which may occur at a certain probability, a backup system should be arranged in advance by using a multiple-layered structure or by making a fail-safe equipment design etc.

5. If there is a risk of fire or personal injury due to abnormal heat generation, sparking, smoke generated by the product, etc., cut off the power supply from this product and the system immediately.

Handling

⚠Warning

1. Never touch the inside of the driver and its peripheral devices.
Otherwise, electric shock or failure can result.

2. Do not operate or set up this equipment with wet hands.
Otherwise, electric shock can result.

3. Do not use a product that is damaged or missing any components.
Electric shock, fire or injury can result.

4. Use only the specified combination between the electric actuator and driver.
Otherwise, it may cause damage to the driver or to the other equipment.

5. Be careful not to touch, get caught or hit by the workpiece while the actuator is moving.
An injury can result.

6. Do not connect the power supply or power up the product until it is confirmed that the workpiece can be moved safely within the area that can be reached by the workpiece.
Otherwise, 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.
Otherwise, it may cause burns due to the high temperature.

8. Check the voltage using a tester at least 5 minutes after power-off when performing installation, wiring and maintenance.
Otherwise, electric shock, fire or injury can result.

Handling

⚠Warning

9. Static electricity may cause a malfunction or damage the driver. Do not touch the driver while power is supplied to it.
Take sufficient safety measures to eliminate static electricity when it is necessary to touch the driver for maintenance.

10. Do not use the products in an area where they could be exposed to dust, metallic powder, machining chips or splashes of water, oil or chemicals.
Otherwise, a failure or malfunction can result.

11. Do not use the products in a magnetic field.
Otherwise, a malfunction or failure can result.

12. Do not use the products in an environment where flammable, explosive or corrosive gases, liquids or other substances are present.
Otherwise, fire, explosion or corrosion can result.

13. Avoid heat radiation from strong heat sources, such as direct sunlight or a hot furnace.
Otherwise, it will cause a failure to the driver or its peripheral devices.

14. Do not use the products in an environment with cyclic temperature changes.
Otherwise, it will cause a failure to the driver or its peripheral devices.

15. Do not use the products in an environment where surges are generated.
Devices (solenoid type lifters, high frequency induction furnaces, motors, etc.) that generate a large amount of surge around the product may lead to deterioration or damage to the internal circuits of the products. Avoid supplies of surge generation and crossed lines.

16. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

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.

Mounting

⚠Warning

1. Install the driver and its peripheral devices on fireproof material.
Direct installation on or near flammable material may cause fire.

2. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

3. The driver should be mounted on a vertical wall in a vertical direction.
Also, do not cover the driver's suction/exhaust ports.

4. Install the driver and its peripheral devices on a flat surface.
If the mounting surface is not flat or uneven, excessive force may be applied to the housing and other parts resulting in a malfunction.

LECYM/LECYU Series
AC Servo Motor Driver/ Specific Product Precautions 2

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Power Supply

⚠Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.

2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

⚠Warning

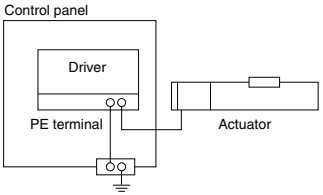
1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver's servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.

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. 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 the ground, it may be disconnected.

Maintenance

⚠Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.

2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.

3. Do not disassemble, modify or repair the driver or its peripheral devices.

4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.

5. Do not conduct an insulation resistance test or insulation withstand voltage test.

6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.