■ Connection and Operation (*FLEX* Built-in controller type)

● Names and Functions of Driver Parts

RS-485 Communication Connector (CN7)

RS-485 Communication Connector (CN6)

4 Terminal Resistance Switch (SW3)

[Driver Top]

1 Signal Monitor Indication

Control Module Connector (CN3)

Not used (CN5)

2 Axis Setting Switch (SW1)

3 Function Switch (SW2)

Actuator Connector (CN4)

5 I/O Signal Connector (CN2)

Power connector (CN1)

1 Signal Monitor Display
◇ LED Indicator

Indication	Color	Function	Lighting Condition
POWER	Green	Power supply indication	When the power supply is input
ALARM	Red	Alarm Indication	When a protective function is activated (blinking)
C-DAT	Green	Communication Indication	When data is being received or sent
C-ERR	Red	Communication Error Indication	When a communication error has occurred

◇ Alarm Contents

Blink Count	Function	Operating Condition
2	Overheat Protection	When the temperature in the driver reaches approximately 85℃
3	Overvoltage Protection	When the internal voltage of the driver exceeds the permissible value
7	±LS Simultaneous Input	When both +LS and −LS are detected
	±LS Reverse Connection	When the LS opposite from the home direction is detected during return-to-home operation
	Return-to-Home Operation Abnormality	When the return-to-home sequence does not end normally
	HOMES Not Detected	When HOMES is not detected from +LS to −LS during a return-to-home operation in 3-sensor mode
	TIM, SLIT Signal Abnormality	When the TIM input or SLIT input is not detected during return-to-home operation
	Hardware Overtravel	When +LS or −LS is detected
	Software Overtravel	When the software limit is reached
	Return-to-Home Operation Offset Abnormality	When +LS or −LS is detected in offset movement in a return-to-home operation
	Operating Data Error	When an operating data error has occurred
	RS-485 Communication Error	When the set number of RS-485 communication consecutive errors is reached
	RS-485 Communication Timeout	When an RS-485 communication timeout is detected
	Network Bus Error	When the bus goes OFF for the higher level network for the network controller during motor operation
	Network Converter Error	When an alarm is issued in the network converter
9	EEPROM Error	When the saved driver data is damaged

2 Axis Setting Switch (SW1)

Indication	Function
SW1	Set when using with RS-485 communication. Sets the axis number (Factory Setting: 0).

Features

How to Read
Specifications Table

System
Configuration

Specifications and
Dimensions
Standard Type

Specifications and
Dimensions
Guide Type

Specifications and
Dimensions
Table Type

General
Specifications

Specifications, Dimensions,
Connections
Driver

Combination
List

Accessories

Selection
calculation

③ Function Switch (SW2)

Indication	No.	Function
SW2	1	Sets the RS-485 baud rate (Factory Setting: ON).
	2	
	3	
	4	Sets the RS-485 connection destination (Factory Setting: OFF).

◇ Settings for RS-485 Communication Speed

No. \ Baud Rate	9600 bps	19200 bps	38400 bps	57600 bps	115200 bps	250000 bps	312500 bps	625000 bps
1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
3	OFF	OFF	OFF	OFF	ON	ON	ON	ON

◇ Settings for RS-485 Connection Destination

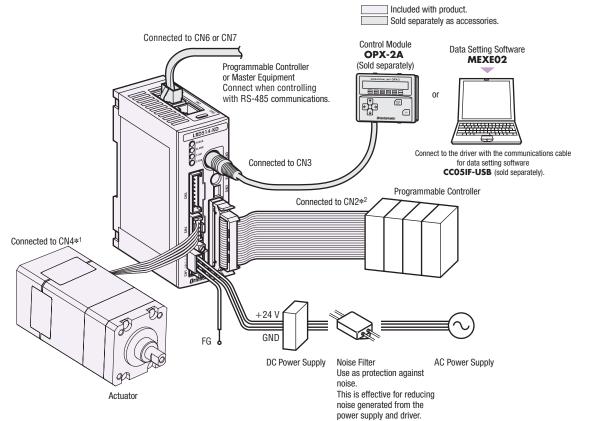| No. \ Connection Destination	Network Converter	General Purpose Master Equipment
4	OFF	ON

④ Terminal Resistance Switch (SW3)

Indication	Function
SW3	Sets whether or not there is a terminating resistor (120 Ω) for RS-485 communication (Factory Setting: OFF). OFF: Terminating resistor not used ON: Terminating resistor used

⑤ I/O Signal Connector (CN2, 40 pins)

Indication	I/O	Pin No.	Code	Signal Name
CN2	Input	A1	IN-COM0	Input common
		A2	START	Start Input
		A3	ALM-RST	Alarm Reset Input
		A4	AWO	All Windings Off Input
		A5	STOP	Stop Input
		A6	M0	Data Selection Input
		A7	M1	
		A8	M2	
		A9	M3	
		A10	M4	
		A11	M5	
		A12	HOME/P-PRESET	Return-to-Home/Position Preset Input
		A13	FWD	CW Rotation (Forward) Input
		A14	RVS	CCW (Reverse) Input
		A15	+LS	+Side Limit Sensor Input
		A16	−LS	−Side Limit Sensor Input
		A17	HOMES	Mechanical Home Sensor Input
		A18	SLIT	Slit Sensor Input
		A19	−	−
		A20	IN-COM1	Sensor Input Common
	Output power	B1	MOVE+	Output During Actuator Drive
		B2	MOVE−	
		B3	ALM+	Alarm Output
		B4	ALM−	
		B5	OUT1+	Control Output 1✻
		B6	OUT1−	
		B7	OUT2+	Control Output 2✻
		B8	OUT2−	
		B9	OUT3+	Control Output 3✻
		B10	OUT3−	
		B11	OUT4+	Control Output 4✻
		B12	OUT4−	
		B13	−	−
		B14	−	−
		B15	PLS-OUT+	Pulse Output (Line driver output)
		B16	PLS-OUT−	
		B17	DIR-OUT+	Traveling Direction Output (Line driver output)
		B18	DIR-OUT−	
		B19	GND	GND
		B20	−	−

✻Control outputs 1 (OUT1) to 4 (OUT4) set functions to be assigned according to parameter settings.
The initial values are OUT1 (AREA), OUT2 (READY), OUT3 (WNG), and OUT4 (HOME-P).

●Connection Diagram
◇Connections with Peripheral Equipment

Included with product.

Sold separately as accessories.

Connected to CN6 or CN7

Programmable Controller or Master Equipment Connect when controlling with RS-485 communications.

Control Module
OPX-2A
(Sold separately)

Data Setting Software
MEXE02

or

Connect to the driver with the communications cable for data setting software
CC05IF-USB (sold separately).

Connected to CN3

Programmable Controller

Connected to CN2∗2

Connected to CN4∗1

+24 V

FG

GND

DC Power Supply

Noise Filter
Use as protection against noise.
This is effective for reducing noise generated from the power supply and driver.

AC Power Supply

Actuator

∗1 When the product or the driver is purchased, it comes with a 0.6 m connection cable.
∗2 When the product or the driver is purchased, it comes with a 1 m connection cable.
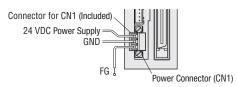● Keep the wiring distance between the actuator and driver to 10 m max..

◇Power Supply Connection
Use the included connector for CN1 to connect the power cable (AWG22: 0.3 mm^2) to the driver's power connector (CN1).
Connecting the DC power-supply input with the polarity reversed would damage the driver (circuits). Make sure that the polarity is correct before turning power on.
Provide a power supply that can supply adequate input current.
If the power supply capacity is inadequate, abnormalities such as the following occur.
● The actuator does not operate normally in high-speed operation.
● The actuator does not accelerate or decelerate as set.

Connector for CN1 (Included)
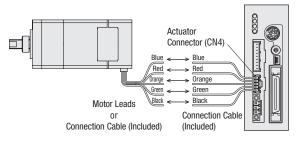24 VDC Power Supply
GND
FG
Power Connector (CN1)

◇Actuator Connection
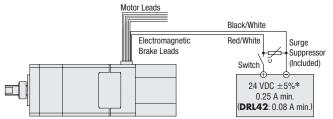Connect using the included connection cable (for actuator connector, CN4).
The terminals and connectors required for connecting the motor leads and the connection cable are not included.
For motor lead extension, use a wire of AWG22 (0.3 mm^2) min.

Actuator Connector (CN4)

Blue ←→ Blue
Red ←→ Red
Orange ←→ Orange
Green ←→ Green
Black ←→ Black

Motor Leads or Connection Cable (Included)

Connection Cable (Included)

◇Connecting the Electromagnetic Brake
Use power supplies of 24 VDC±5%∗, 0.25 A min. (for the **DRL42**, 0.08 A min.)

Motor Leads

Black/White

Electromagnetic Brake Leads

Red/White

Surge Suppressor (Included)

Switch
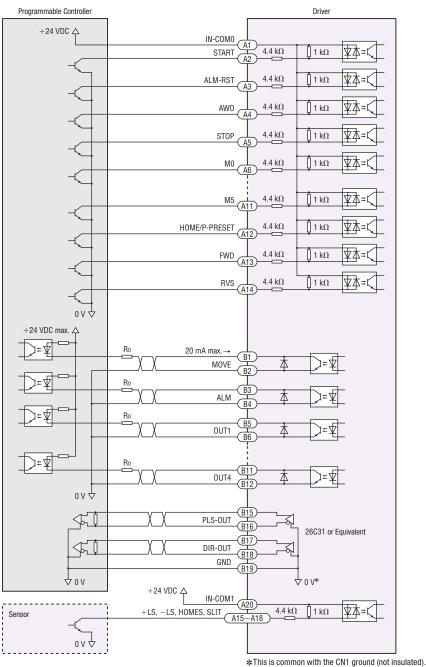
24 VDC ±5%∗
0.25 A min.
(**DRL42**: 0.08 A min.)

∗If the wiring distance is extended by 20 m or more, the specification becomes 24 VDC ±4%.
Notes
● Applying voltage exceeding the specifications causes actuator failure.
● To protect the switch contacts and prevent noise, always connect a surge suppressor. (The surge suppressor is included with electromagnetic brake motors.)

Features

How to Read Specifications Table

System Configuration

Specifications and Dimensions Standard Type

Specifications and Dimensions Guide Type

Specifications and Dimensions Table Type

General Specifications

Specifications, Dimensions, Connections Driver

Combination List

Accessories

Selection calculation

◇**Connection to Programmable Controller**

•**Connection Diagram for Connection with Current Sink Output Circuit**

✻This is common with the CN1 ground (not insulated).

Notes
- Use the included cable with connector for the I/O signal cable and keep the wiring distance as short as possible.
- Use 24 VDC for the input signals. Using voltage exceeding the specifications can break elements.
- Use 24 VDC max. and current of 20 mA max. for the output signals. Using voltage exceeding the specifications can break elements.
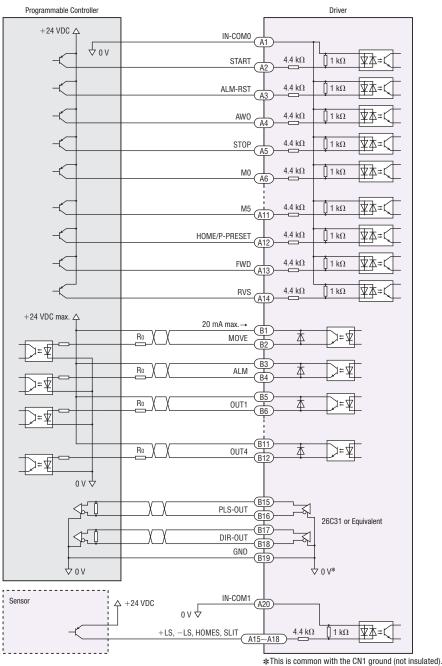 Check the specifications for the connected equipment. If the current exceeds 20 mA, connect the external resistor R_0.
- Connect a terminating resistor of 100 Ω min. between the line receiver inputs.
- Provide a distance of 100 mm min. between the signal lines and power lines (power supply lines, actuator lines). Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the actuator cable or power supply cable causes a problem with the specific wiring or layout, shield the cable or use ferrite cores.

●Connection Diagram for Connection with Current Source Output Circuit

Programmable Controller | Driver

+24 VDC
0 V

Signal	Pin		
IN-COM0	A1		
START	A2	4.4 kΩ	1 kΩ
ALM-RST	A3	4.4 kΩ	1 kΩ
AWO	A4	4.4 kΩ	1 kΩ
STOP	A5	4.4 kΩ	1 kΩ
M0	A6	4.4 kΩ	1 kΩ
M5	A11	4.4 kΩ	1 kΩ
HOME/P-PRESET	A12	4.4 kΩ	1 kΩ
FWD	A13	4.4 kΩ	1 kΩ
RVS	A14	4.4 kΩ	1 kΩ

+24 VDC max.
20 mA max. →

R0	MOVE	B1	
		B2	
R0	ALM	B3	
		B4	
R0	OUT1	B5	
		B6	
R0	OUT4	B11	
		B12	

0 V

PLS-OUT	B15
	B16
DIR-OUT	B17
	B18
GND	B19

26C31 or Equivalent

0 V
0 V*

Sensor
+24 VDC
IN-COM1 A20
0 V
+LS, −LS, HOMES, SLIT A15~A18   4.4 kΩ   1 kΩ

✽This is common with the CN1 ground (not insulated).

Notes
● Use the included cable with connector for the I/O signal cable and keep the wiring distance as short as possible.
● Use 24 VDC for the input signals. Using voltage exceeding the specifications can break elements.
● Use 24 VDC max. and current of 20 mA max. for the output signals. Using voltage exceeding the specifications can break elements.
  Check the specifications for the connected equipment. If the current exceeds 20 mA, connect the external resistor R0.
● Connect a terminating resistor of 100 Ω min. between the line receiver inputs.
● Provide a distance of 100 mm min. between the signal lines and power lines (power supply lines, actuator lines). Do not run the signal lines in the same piping as power lines or bundle them with power lines.
● If noise generated by the actuator cable or power supply cable causes a problem with the specific wiring or layout, shield the cable or use ferrite cores.

Features
How to Read Specifications Table
System Configuration
Specifications and Dimensions Standard Type
Specifications and Dimensions Guide Type
Specifications and Dimensions Table Type
General Specifications
Specifications, Dimensions, Connections Driver
Combination List
Accessories
Selection calculation