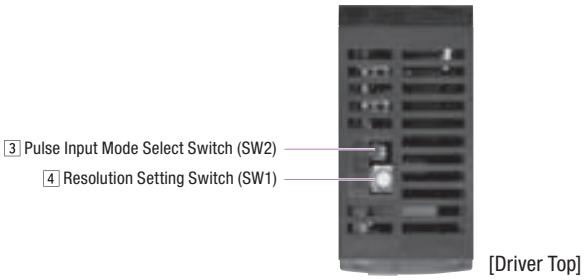
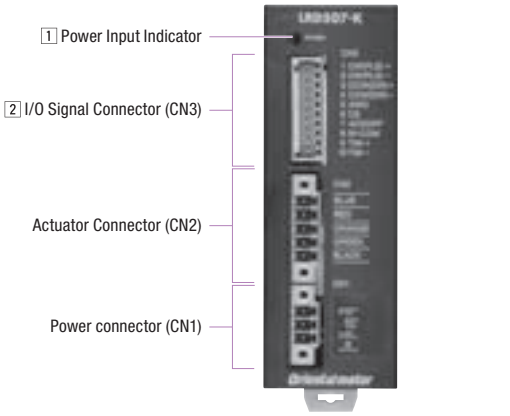
Connection and Operation (Pulse input type)

Names and Functions of Driver Parts



[Driver Top]



1 Power Input Indicator

◇LED Indicator

Color	Function	Lighting Condition
Green	Power supply indication	Lights up when the power supply is input.

2 I/O Signal Connector (CN3, 10 pins)

Indication	Input/output	Pin No.	Code	Signal Name
CN3	Input	1	CW (PLS) +	CW Pulse (Pulse)
		2	CW (PLS) –	
		3	CCW (DIR) +	CCW Pulse (Traveling direction)
		4	CCW (DIR) –	
		5	AWO	All windings off
		6	CS	Resolution Select
		7	ACDOFF	Automatic current cutback release
		8	IN-COM	Input common
	Output power	9	TIM+	Timing
		10	TIM–	

3 Pulse Input Mode Select Switch (SW2)

Indication	No.	Function
SW2	1	Switches the pulse input mode between 1-pulse input mode and 2-pulse input mode.
	2	Not used.

4 Resolution Setting Switch (SW1)

Indication	Function
SW1	Switch can be set to the desired resolution from the 16 resolution levels.

Standard Type

Resolution Setting Switch		**DRL20**, **28** Lead 1 mm	**DRL42** Lead 2 mm	**DRL42** Lead 8 mm	**DRL60** Lead 4 mm
SW1 Scale	Resolution	Resolution [mm]	Resolution [mm]	Resolution [mm]	Resolution [mm]
0	1	0.002	0.004	0.016	0.008
1	2	0.001	0.002	0.008	0.004
2	2.5	0.0008	0.0016	0.0064	0.0032
3	4	0.0005	0.001	0.004	0.002
4	5	0.0004	0.0008	0.0032	0.0016
5	8	0.00025	0.0005	0.002	0.001
6	10	0.0002	0.0004	0.0016	0.0008
7	20	0.0001	0.0002	0.0008	0.0004
8	25	0.00008	0.00016	0.00064	0.00032
9	40	0.00005	0.0001	0.0004	0.0002
A	50	0.00004	0.00008	0.00032	0.00016
B	80	0.000025	0.00005	0.0002	0.0001
C	100	0.00002	0.00004	0.00016	0.00008
D	125	0.000016	0.000032	0.000128	0.000064
E	200	0.00001	0.00002	0.00008	0.00004
F	250	0.000008	0.000016	0.000064	0.000032

High-Resolution Motor Type

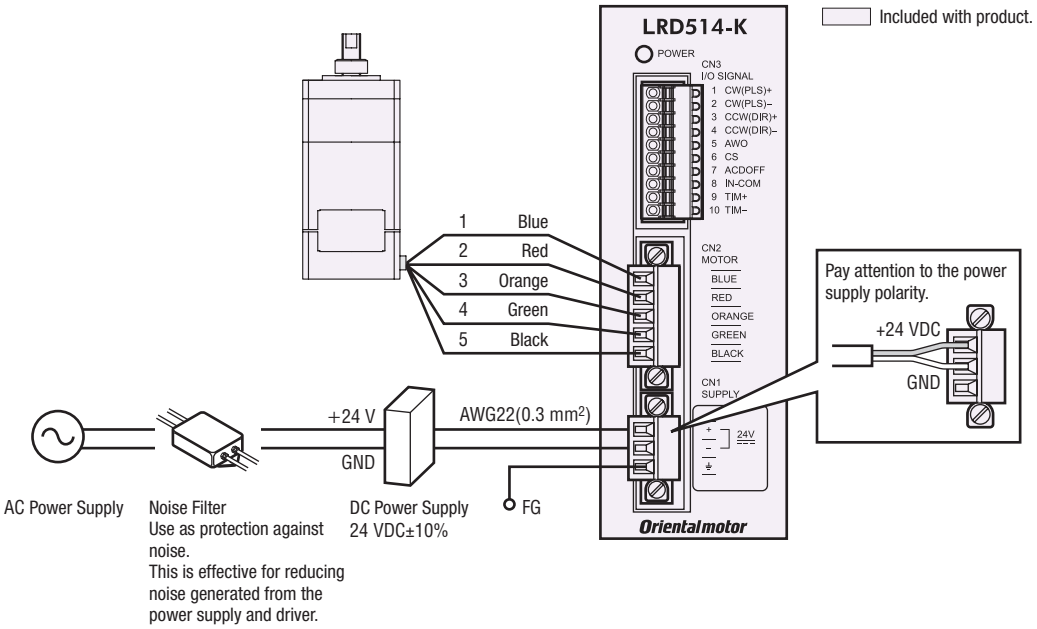
Resolution Setting Switch		**DRL28** Lead 1 mm	**DRL42** Lead 2 mm	**DRL60** Lead 4 mm
SW1 Scale	Resolution	Resolution [mm]	Resolution [mm]	Resolution [mm]
0	1	0.001	0.002	0.004
1	2	0.0005	0.001	0.002
2	2.5	0.0004	0.0008	0.0016
3	4	0.00025	0.0005	0.001
4	5	0.0002	0.0004	0.0008
5	8	0.000125	0.00025	0.0005
6	10	0.0001	0.0002	0.0004
7	20	0.00005	0.0001	0.0002
8	25	0.00004	0.00008	0.00016
9	40	0.000025	0.00005	0.0001
A	50	0.00002	0.00004	0.00008
B	80	0.0000125	0.000025	0.00005
C	100	0.00001	0.00002	0.00004
D	125	0.000008	0.000016	0.000032
E	200	0.000005	0.00001	0.00002
F	250	0.000004	0.000008	0.000016

Notes

- The resolutions are theoretical values.
- The resolution is calculated by dividing the basic resolution by the number of microstep.
- Do not change the "Resolution Select" signal (CS) input or resolution select switch while the actuator is operating. This may cause a malfunction with the actuator.

●Connection Diagram

◇Connections with Peripheral Equipment



●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 mm²) 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.

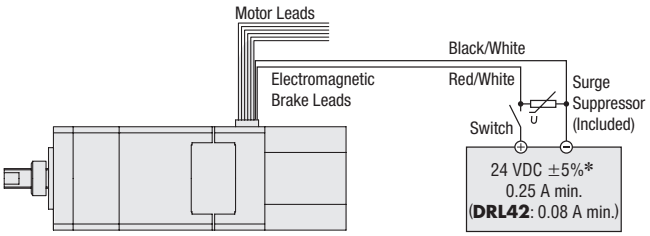
- ●The actuator does not operate normally in high-speed operation.
- ●The actuator does not accelerate or decelerate as set.

◇Extension of Motor Lead

Use a wire of AWG22 (0.3 mm²) min.

◇Connecting the Electromagnetic Brake

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



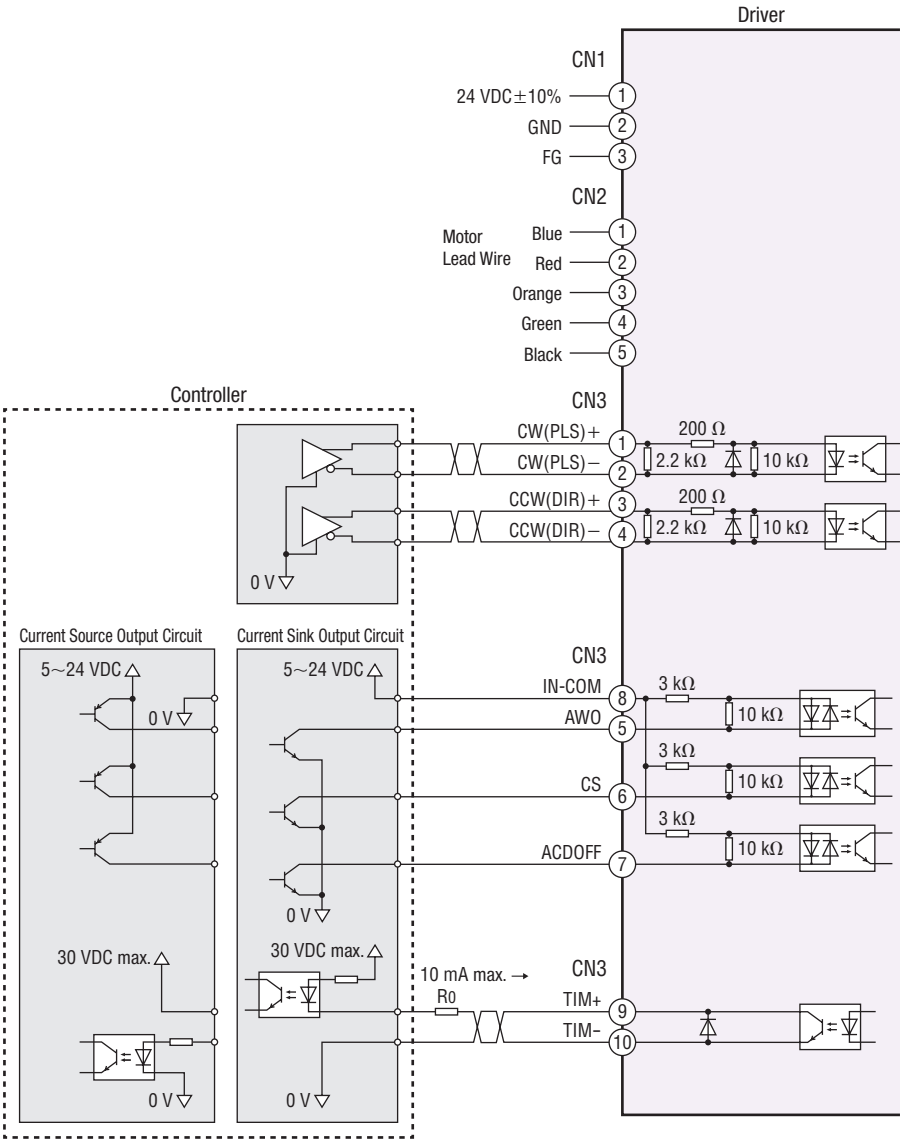
*If the wiring distance is extended by 20 m or more, the specification becomes 24 VDC ±4%.

Notes

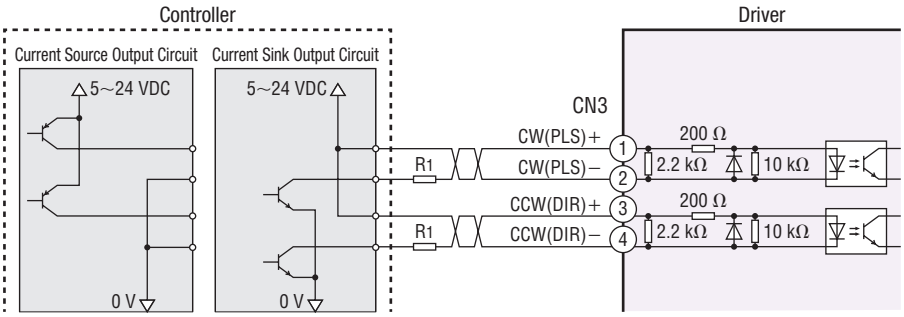
- ●Applying voltage exceeding the specifications causes actuator failure.
- ●To protect the switch contacts and prevent noise, always connect a surge suppressor. (The surge suppressor is included with electromagnetic brake motors.)

Connection Diagram

◇When the Pulse Input is the Line Driver



◇When the Pulse Input is Open Collector



[Note on Wiring]

◇I/O Signal Connection

- Input Signal
  The external resistor is not needed when the voltage is 5 VDC. If voltage exceeding 5 VDC is applied, connect an external resistor R_1 so that the current is 7 to 20 mA.
  Example) When V_0 is 24 VDC, R_1: 1.5 to 2.2 kΩ, 0.5 W min.
- Output Signal
  Check the specifications of the connected devices. If the current exceeds 10 mA, connect the external resistor R_0.
- Use a twisted-pair wire of AWG26 to 20 (0.14 to 0.5 mm^2).
- Since the maximum transmissible frequency drops as the pulse line becomes longer, keep the wiring length as short as possible (within 2 m).
- 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.

◇Power Supply Connection

- Use a wire of AWG22 (0.3 mm^2).
- Incorrect polarities of the DC power-supply input will lead to driver damage. Make sure that the polarity is correct before turning power on.

◇Extension of Motor Lead

- Use a wire of AWG22 (0.3 mm^2) min.