

# Wiring example

## Driver Frame Type Symbol (Frame A, B, C, D)

For details, refer to the Instruction Manual.

### • Wiring of main circuit

#### Circuit Breaker (NFB)

Protects the power lines.  
Shuts off the circuit when overcurrent passes.

#### Noise Filter (NF)

Prevents external noise from the power lines.  
And reduces an effect of the noise generated by the servo driver.

#### Magnetic Contactor (MC)

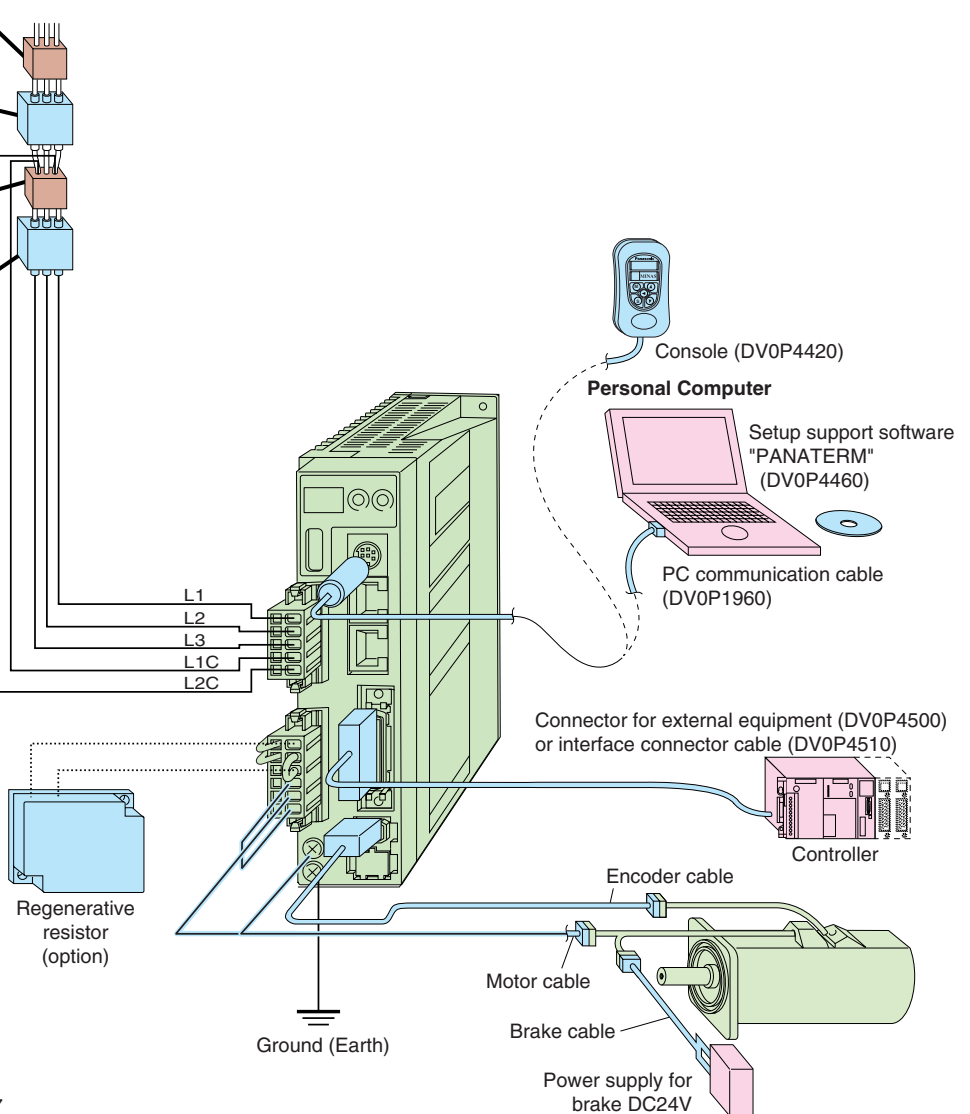
Turns on/off the main power of the servo driver.  
Surge absorber to be used together with this.

#### Reactor (L)

Reduces harmonic current of the main power.

#### Pin RB, RB2 and RB3 ...

- RB2 and RB3 to be kept shorted for normal operation.
- When the internal regenerative resistor capacity has shortage, disconnect between RB2 and RB3, then connect an external regenerative resistor between RB1 and RB2. (Note: that no regenerative resistor is equipped in Frame A and B type.)



Motor to page A4-77

Driver to page A4-67

Option to page A4-141

Recommended equipments to page A4-64

Parts customer to prepare

## Driver Frame Type Symbol (Frame E, F)

For details, refer to the Instruction Manual.

### • Wiring of main circuit

#### Circuit Breaker (NFB)

Protects the power lines.  
Shuts off the circuit when overcurrent passes.

#### Noise Filter (NF)

Prevents external noise from the power lines.  
And reduces an effect of the noise generated by the servo driver.

#### Magnetic Contactor (MC)

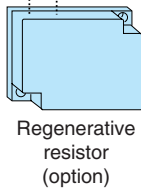
Turns on/off the main power of the servo driver.  
Surge absorber to be used together with this.

#### Reactor (L)

Reduces harmonic current of the main power.

#### Pin P, B1 and B2 ...

- B1 and B2 to be kept shorted for normal operation.
- When the internal regenerative resistor capacity has shortage, disconnect between B1 and B2, then connect an external regenerative resistor between P and B2.



Ground (Earth)

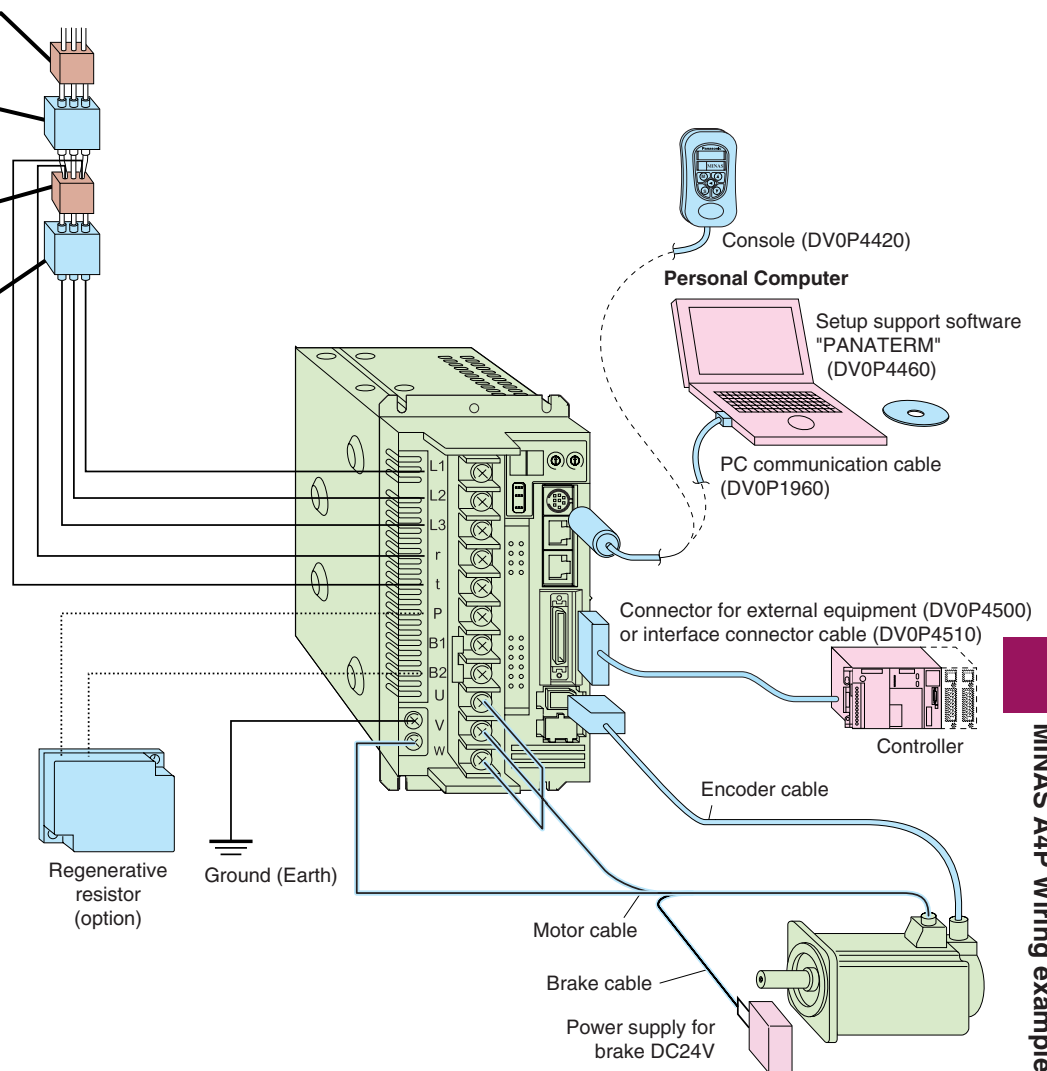
**Motor** to page A4-77

**Driver** to page A4-67

**Option** to page A4-141


**Recommended equipments** to page A4-64


**Parts customer to prepare**



# Wiring example

## ● List of recommended peripheral equipments

Power supply voltage	Applicable motor		Power capacity (at rated load)	Circuit breaker (rated current)	Noise filter	Surge absorber	Noise filter (signal)	Magnetic contactor (Contact)	Cable diameter (Main circuit)	Cable diameter (control circuit)	Connector				
	Series	Output													
Single phase, 100V	MSMD	50W	Approx. 0.4kVA	BBW2102 (10A)	DVOP4170	DVOP4190		BMFT61041N (3P+1a)	0.75mm <sup>2</sup> to 2.0mm <sup>2</sup> AWG14 to 18		Connection to exclusive connector				
		100W													
	MQMA	200W	Approx. 0.5kVA					DVOP4180							
		400W	Approx. 0.9kVA												
Single phase, 200V	MSMD	50W	Approx. 0.5kVA		BBW3152 (15A)		DVOP4170	DVOP1460					BMFT61542N (3P+1a)		
		100W													
	MQMA	100W	Approx. 0.3kVA												
		MQMA	200W				Approx. 0.5kVA								
	MQMA		400W	Approx. 0.9kVA											
		Single/ 3-phase, 200V	MAMA	400W		Approx. 0.9kVA	BBW3202 (20A)		DVOP4180	DVOP1450			BMFT61842N (3P+1a)		
MFMA															
MHMA	500W		Approx. 1.1kVA												
	MSMD		750W	Approx. 1.3kVA											
MAMA			750W	Approx. 1.6kVA											
	MDMA		1.0kW	Approx. 1.8kVA											
MHMA			900W												
	MGMA		1.0kW												
MSMA		1.5kW	Approx. 2.3kVA												
	MDMA														
		MFMA													
	MHMA														
3-phase, 200V		MSMA	2.0kW	Approx. 3.3kVA	BBW3302 (30A)	DVOP4220	DVOP1450		BMF6352N (3P+2a2b)	3.5mm <sup>2</sup> AWG12	Terminal block M5 11.0 or smaller 				
	MHMA														
		MFMA	2.5kW	Approx. 3.8kVA											
	MGMA		2.0kW												
		MSMA	3.0kW	Approx. 4.5kVA											
	MDMA														
		MHMA	4.0kW	Approx. 6.0kVA											
	MGMA														
		MSMA	4.5kW	Approx. 6.8kVA											
	MDMA														
		MHMA	5.0kW	Approx. 7.5kVA											
	MGMA														
MSMA		5.0kW	Approx. 7.5kVA												
	MDMA														
MHMA		5.0kW	Approx. 7.5kVA												
	MGMA														

- Select a single and 3-phase common specifications corresponding to the power supplies.
- Listed circuit breaker and magnetic contactor are manufactured by Panasonic Electric Works.  
**To conform to EC Directives, install a circuit breaker which conforms to IEC and UL Standards (Listed,  marked) between noise filter and power supply without fail.**
- For details of noise filter, refer to Page A4-138.

#### <Remarks>

- Select a circuit breaker and noise filter which match to the capacity of power supply (including a load condition).
- Terminal block and earth terminals
  - Use a copper conductor cables with temperature rating of 60°C or higher.
  - Earth terminals for Frame A to D are M4 and M5 for Frame E, F.
  - Larger tightening torque for screws than the max.value (M4 : 1.2 N·m, M5 : 2.0 N·m) may damage the terminal block.
  - Mounting screws on the cover of terminal block for frames E, F should be tightened with 0.2 N·m torque.  
Application of torque larger than 0.2 N·m may damage the thread on the driver.
- Use an earth cable with the same diameter as that of the main circuit cable.  
If the diameter of the main circuit cable is 1.6mm<sup>2</sup> or less, use an earth cable with a diameter of 1.6mm<sup>2</sup> (AWG14).
- Use the attached exclusive connector for A to D-frame, and maintain the peeled off length of 8 to 9mm.
- Tighten the screws of the connector, CN X5 for the host controller with the torque of 0.3 to 0.35 N·m.
- Larger torque than 0.35N·m may damage the connector at the driver side.

#### <Caution>

Do not turn on power without first positively tightening all terminal block screws, otherwise, loose contacts may generate heat (smoking, firing).