

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.

<For safe operation>

When using reactors, install one reactor for each servo driver. (Do not use one reactor for two or more drivers.)

Pin RB1, 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.)

Regenerative resistor (option)

Ground (Earth)

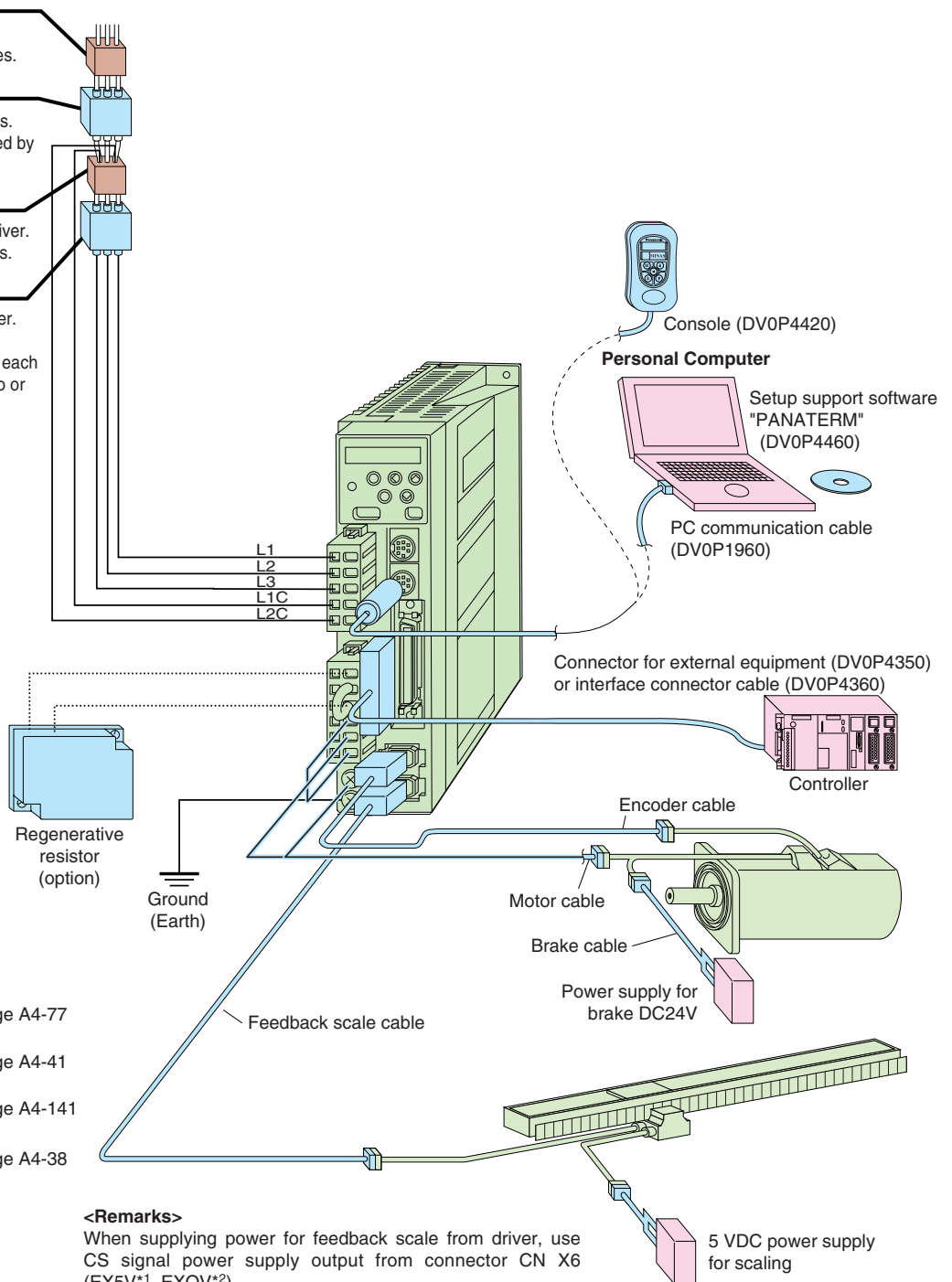
Motor	to page A4-77
Driver	to page A4-41
Option	to page A4-141
Recommended equipments	to page A4-38
Parts customer to prepare	

<Remarks>

When supplying power for feedback scale from driver, use CS signal power supply output from connector CN X6 (EX5V*1, EXOV*2).

*1 Current consumption of EX5V is 250 mA max.

*2 EXOV is connected to GND of the control circuit connected to CN X5. For wiring, refer to A4-45 and 46.



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.
<For safe operation>
When using reactors, install one reactor for each servo driver. (Do not use one reactor for two or more drivers.)

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.

Regenerative resistor (option)

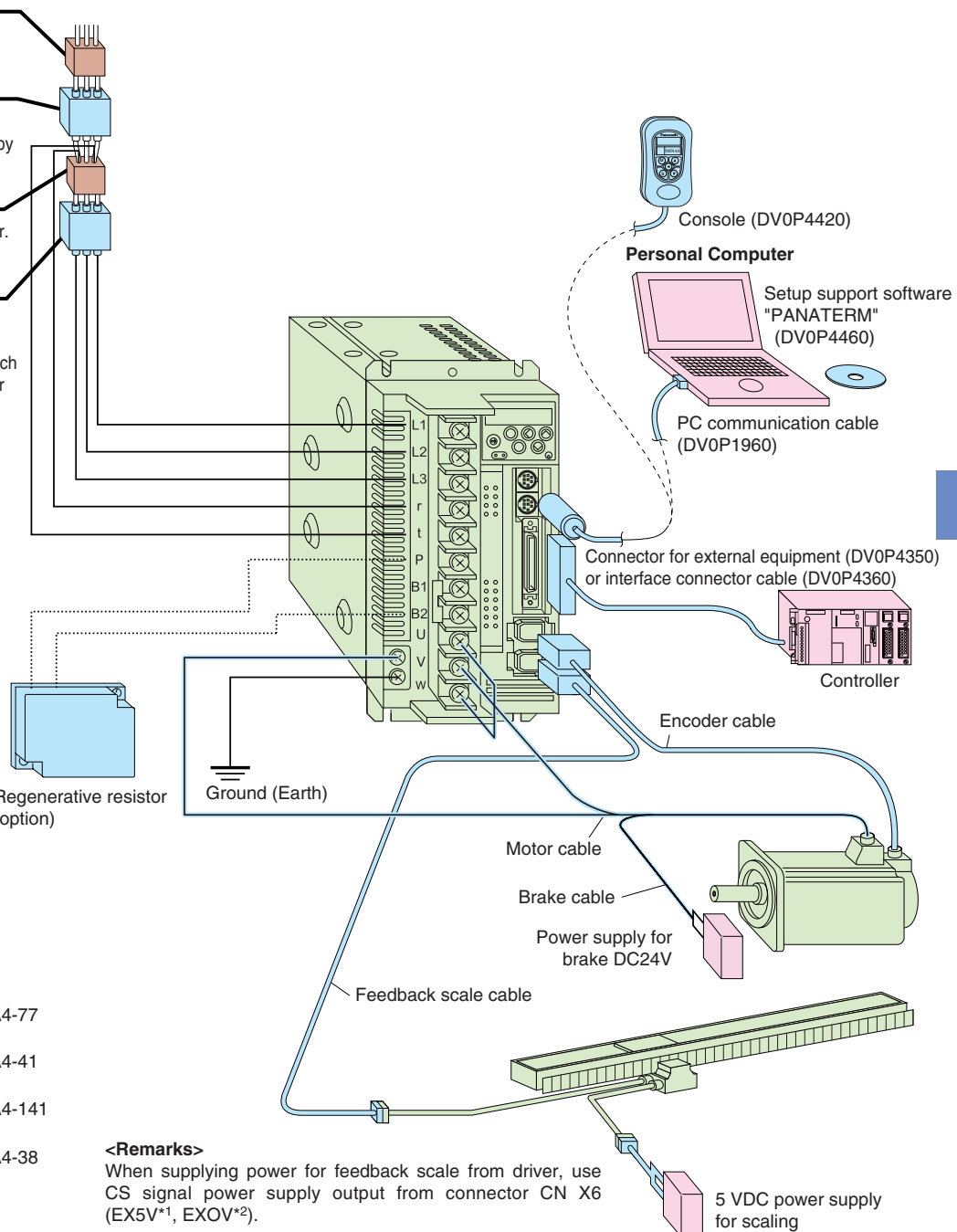
Motor	to page A4-77
Driver	to page A4-41
Option	to page A4-141
Recommended equipments	to page A4-38
Parts customer to prepare	

<Remarks>

When supplying power for feedback scale from driver, use CS signal power supply output from connector CN X6 (EX5V*1, EXOV*2).

*1 Current consumption of EX5V is 250 mA max.

*2 EXOV is connected to GND of the control circuit connected to CN X5. For wiring, refer to A4-45 and 46.



Wiring example

Driver Frame Type Symbol (Frame G)

For details, refer to the Instruction Manual.

● Wiring of main circuit

Magnetic Circuit Breaker (MCB)

Used to protect the power lines: overcurrent will shutoff the circuit.

Noise filter (NF)

Prevents external noise coming from the power line, or reduces noise generated by the servo motor.

Magnetic contactor (MC)

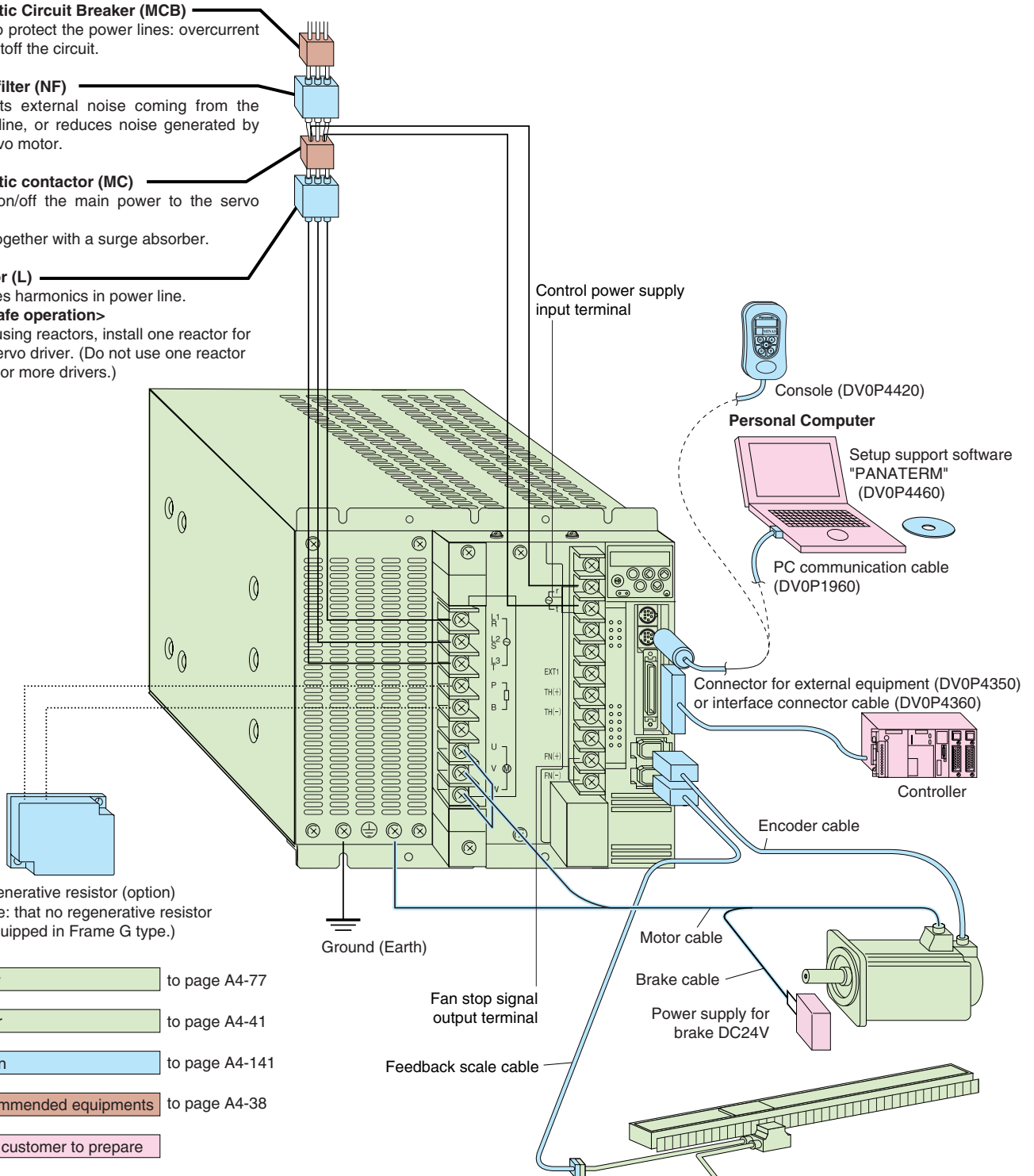
Turns on/off the main power to the servo motor. Used together with a surge absorber.

Reactor (L)

Reduces harmonics in power line.

<For safe operation>

When using reactors, install one reactor for each servo driver. (Do not use one reactor for two or more drivers.)



Regenerative resistor (option)
(Note: that no regenerative resistor is equipped in Frame G type.)

- Motor to page A4-77
- Driver to page A4-41
- Option to page A4-141
- Recommended equipments to page A4-38
- Parts customer to prepare

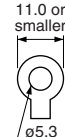
<Remarks>

When supplying power for feedback scale from driver, use CS signal power supply output from connector CN X6 (EX5V*1, EXOV*2).

*1 Current consumption of EX5V is 250 mA max.

*2 EXOV is connected to GND of the control circuit connected to CN X5. For wiring, refer to A4-45 and 46.

● 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	DVOP1460	BMFT61041N (3P+1a)	0.75mm ² to 2.0mm ² AWG14 to 18	0.75mm ² AWG18	Connection to exclusive connector
		100W									
	MQMA	200W	Approx. 0.9kVA								
Single phase, 200V	MSMD	50W			Approx. 0.5kVA			DVOP4170			
		100W	Approx. 0.3kVA								
	MAMA	100W			Approx. 0.5kVA						
	MQMA	200W	Approx. 0.9kVA								
	MSMD	400W		Approx. 0.5kVA							
MQMA	400W	Approx. 0.9kVA									
Single/3-phase, 200V	MAMA		400W	Approx. 0.9kVA	BBW3152 (15A)	DVOP4180	DVOP1460	BMFT61842N (3P+1a)	2.0mm ² AWG14	0.75mm ² AWG18	Terminal block M5 
	MFMA	500W	Approx. 1.1kVA								
	MSMD	750W		Approx. 1.3kVA							
	MAMA	750W	Approx. 1.6kVA								
	MDMA	1.0kW		Approx. 1.8kVA	DVOP4220						
	MHMA	900W	Approx. 2.3kVA								
	MGMA	900W		Approx. 2.3kVA							
	MSMA	1.0kW	Approx. 2.3kVA								
3-phase, 200V	MSMA	1.5kW		Approx. 2.3kVA	BBW3202 (20A)	DVOP4220	DVOP1450	BMF6352N (3P+2a2b)	3.5mm ² AWG12	5.3mm ² AWG10	L1, L2, L3 5.3mm ² AWG10 U, V, W 14mm ² AWG6
	MDMA	1.5kW	Approx. 3.3kVA								
	MHMA	2.0kW		Approx. 3.8kVA							
	MFMA	2.5kW	Approx. 4.5kVA								
	MGMA	2.0kW		Approx. 6.0kVA							
	MSMA	3.0kW	Approx. 6.8kVA								
	MDMA	3.0kW		Approx. 7.5kVA							
	MHMA	4.0kW	Approx. 9.0kVA								
	MFMA	4.5kW		Approx. 11kVA							
	MGMA	4.5kW	Approx. 11kVA								
	MSMA	5.0kW		Approx. 11kVA							
	MDMA	5.0kW	Approx. 11kVA								
	MHMA	6.0kW		Approx. 11kVA							
	MFMA	6.0kW	Approx. 11kVA								
MGMA	7.5kW	Approx. 11kVA									
MSMA	7.5kW		Approx. 11kVA								
MDMA	7.5kW	Approx. 11kVA									
MHMA	7.5kW		Approx. 11kVA								

- 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, (U) 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 to G.
 - 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 to G and screw on acrylic cover of terminal block for frame G 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 1.6mm² or less, use an earth cable with a diameter of 1.6mm² (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).