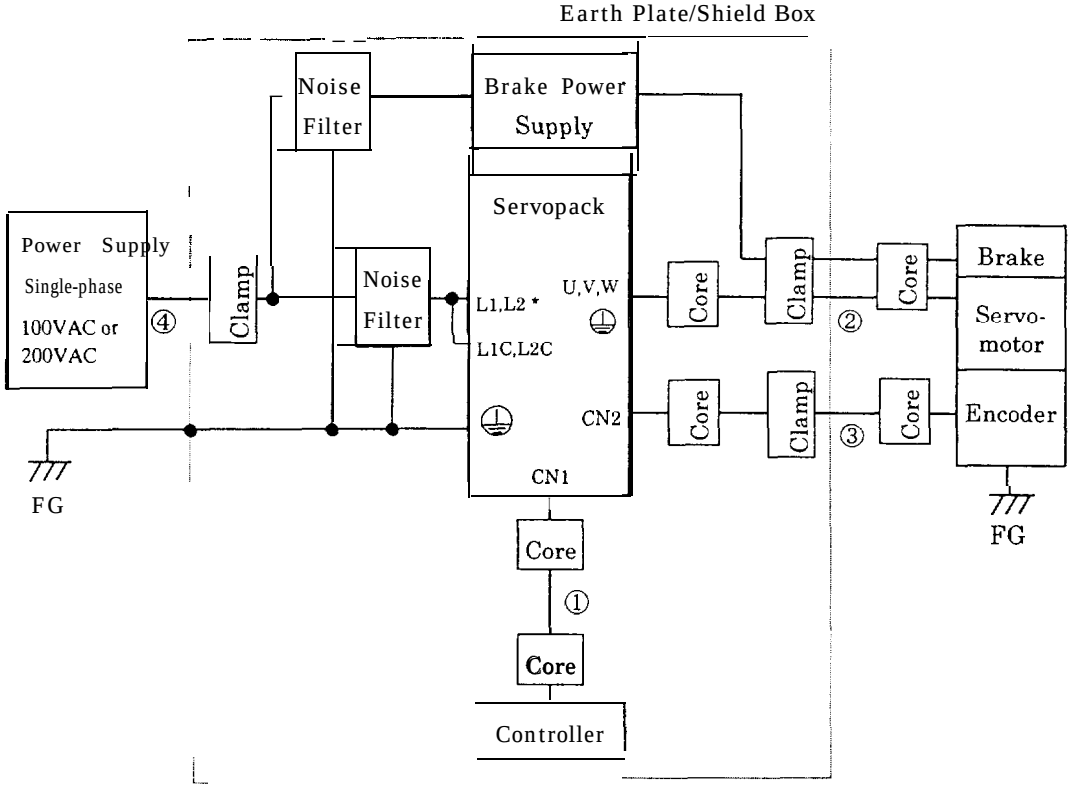
EMC Installation Conditions for SGDH Servopack

YASKAWA ELECTRIC CORPORATION

1. EMC Approved Installation Conditions

1.1 Single-phase 100V/200V

: SGDH-A3BE to -02BE (Single-phase 100V, 30W to 200W)
SGDH-A3AE to -04AE (Single-phase 200V, 30W to 400W)
SGDH-08AE-S (Single-phase 200V, 0.75kW)
SGDH-15AE-S (Single-phase 200V, 1.5kW)

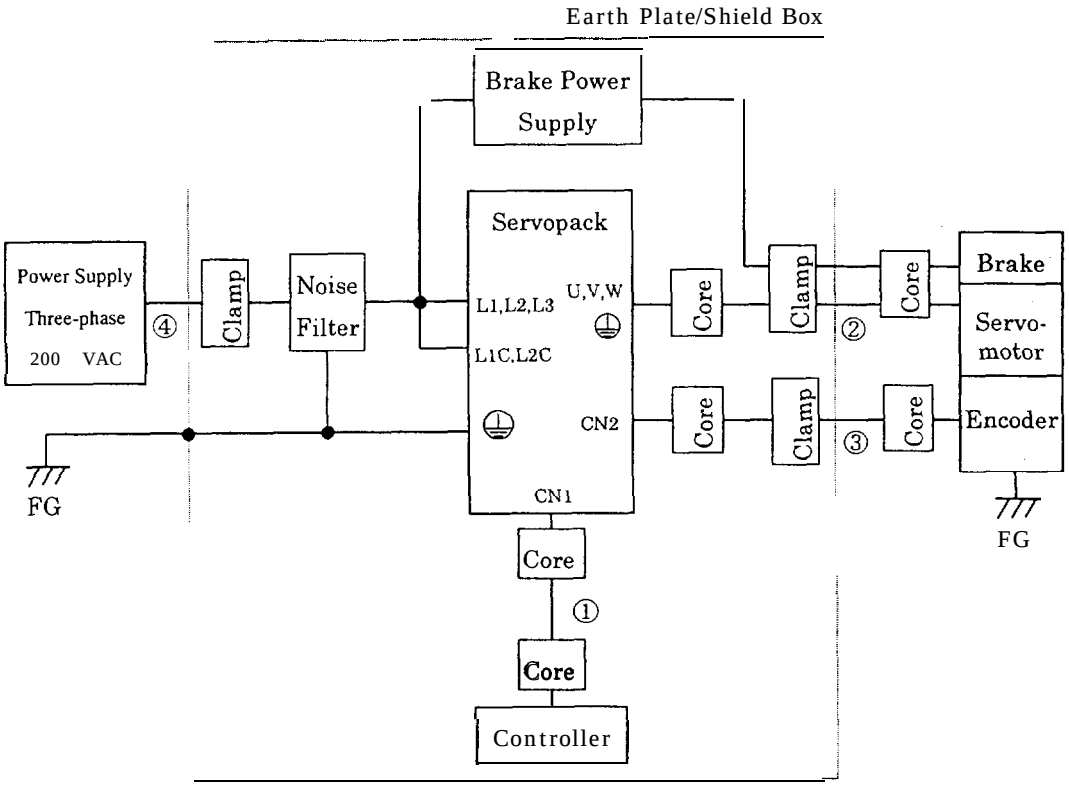


* Connect main power supply to L1-L3 terminals for SGDH-08AE-S and SGDH-15AE-S

Symbol	Cable Name	Specification
①	Controller cable	Shield cable
②	Servomotor cable	Shield cable
③	Encoder cable	Shield cable
④	AC Line cable	Shield cable

1.2 Three-phase 200V

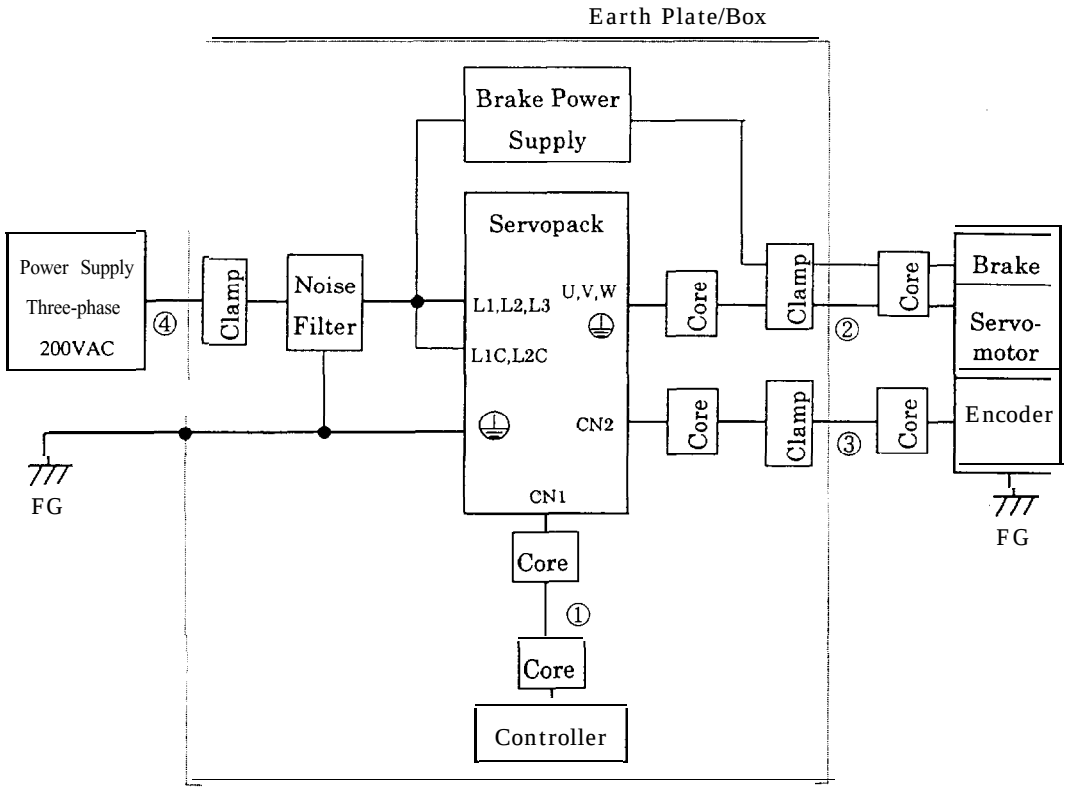
: SGDH-05AE to -50AE (Three-phase 200V, 0.5kW to 5.0kW)



Symbol	Cable Name	Specification
①	Controller cable	Shield cable
②	Sewomotor cable	Shield cable
③	Encoder cable	Shield cable
④	AC Line cable	Shield cable

1.3 Three-phase 200V

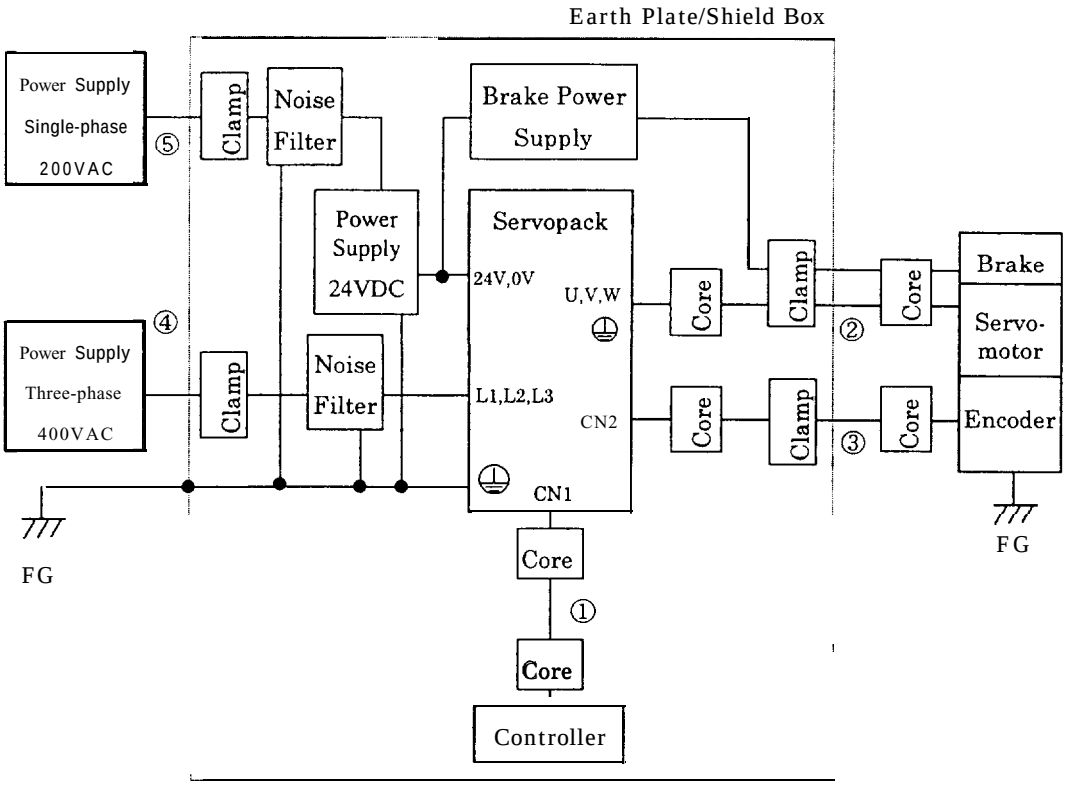
:SGDH-60AE, -75AE (Three-phase 200V, 6.0kW, 7.5kW)



Symbol	Cable Name	Specification
①	Controller cable	Shield cable
②	Servomotor cable	Shield cable
③	Encoder cable	Shield cable
④	AC Line cable	Shield cable

1.4 Three-phase 400V

: SGDH-05DE to -30DE (Three-phase 400V, 0.5kW to 3kW)



Symbol	Cable Name	Specification
①	Controller cable	Shield cable
②	Servomotor cable	Shield cable
③	Encoder cable	Shield cable
④	AC Line cable	Shield cable
⑤	AC Line cable	Shield cable

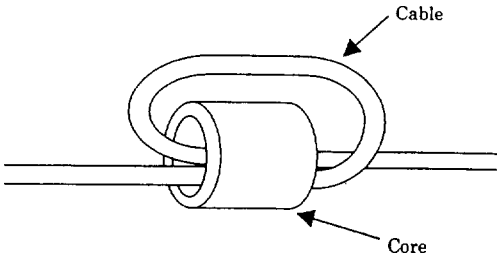
2. The Core on the Cable and Cable Clamp

2.1 The Core on the Cable

Attach the core on the cable as shown below:

Core model	ESD-SR-25
Quantity	1
Turn	2
Manufacturer	Tokin.corp.

Note: 2 turn is as shown below.



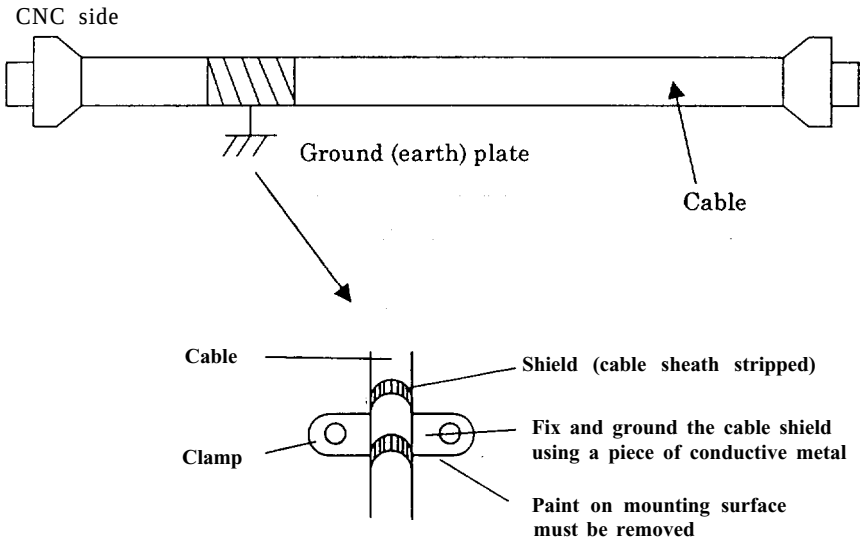
Cable line and the line position where the core are attached are shown below.

Cable Name	Mounting Position of Core
Controller cable	Near the host controller and the Servopack
Servomotor cable	Near the Servopack and the Servomotor
Encoder cable	Near the Servopack and the Servomotor

2.2 Cable Clamp

Fix and ground the cable shield using a piece of conductive metal.

<Example of Cable Clamp>



3. Peripheral Device

3.1 Peripheral Device Types and Capacities

Main Circuit Power Supply	Model		Applicable Servomotor	Power Supply Capacity per Servopack (kVA)	MCCB or Fuse Capacity *1 (A_{rms})	Recommended Noise Filter *2		Magnetic Contactor *3
	Capacity (kW)	SGDH-				Model	Specifications	
Single-phase 100V	0.03	A3BE	SGMAH-A3B	0.15	4	FN2070-6/07	Single phase AC 250V, 6A	HI-11J (20A)
	0.05	A5BE	SGMAH-A5B	0.25				
	0.10	01BE	SGMAH-01B	0.40				
			SGMPH-01B					
	0.20	02BE	SGMAH-02B	0.60	6	FN2070-10/07	Single phase AC 250V, 10A	
			SGMPH-02B					
Single-phase 200V	0.03	A3AE	SGMAH-A3A	0.20	4	FN2070-6/07	Single-phase AC 250V, 6A	HI-11J (20A)
	0.05	A5AE	SGMAH-A5A	0.25				
	0.10	01AE	SGMAH-01A	0.40				
			SGMPH-01A					
	0.20	02AE	SGMAH-02A	0.75				
			SGMPH-02A					
	0.40	04AE	SGMAH-04A	1.2	8	FN2070-10/07	Single-phase AC 250V, 10A	HI-15J (35A)
			SGMPH-04A					
	0.75	08AE-S	SGMAH-08A	2.1	11	FN2070-16/07	Single-phase AC 250V, 16A	
			SGMPH-08A					
	1.5	15AE-S	SGMPH-15A	4.0	19	FN350-30/33	Single-phase AC 250V, 30A	HI-20J (35A)
Three-phase 200V	0.45	05AE	SGMGH-05A□A	1.4	4	FN258L-7/07	Three-phase AC 480V, 7A	HI-11J (20A)
			SGMGH-03A□B					
	0.75	08AE	SGMAH-08A	1.9	7	FN258L-16/07	Three-phase AC 480V, 16A	HI-15J (35A)
			SGMPH-08A					
			SGMGH-06A□B					
	1.0	10AE	SGMGH-09A□A	2.3				
			SGMGH-09A□B					
			SGMSH-10A					
	1.5	15AE	SGMPH-15A	3.2	10			
			SGMGH-13A□A					
			SGMGH-12A□B					
			SGMSH-15A					
	2.0	20AE	SGMGH-20A□A	4.3	13			HI-20J (35A)
			SGMGH-20A□B					
			SGMSH-20A					
	3.0	30AE	SGMDH-22A	5.9	17	FN258L-30/07	Three-phase AC 480V, 30A	
			SGMGH-30A□A					
			SGMGH-30A□B					
			SGMSH-30A					
	5.0	50AE	SGMDH-32A	15	28	FMAC-0934-5010	Three-phase AC 440V, 50A	HI-25J (50A)
			SGMDH-40A					
			SGMSH-40A					
			SGMGH-44A□A					
			SGMGH-44A□B					
			SGMSH-50A					
	6.0	60AE	SGMGH-55A□A	12.5	32			
			SGMGH-60A□B					
	7.5	75AE	SGMGH-75A□A	15.5	41	FMAC-0953-6410	Three-phase AC 440V, 64A	HI-35J (65A)

Main Circuit Power Supply	Model		Applicable Servomotor	Power Supply Capacity per Servopack (kVA)	MCCB or Fuse Capacity *1 (A_{rms})	Recommended Noise Filter*2		Magnetic Contactor *3
	Capacity (kW)	SGDH-				Model	Specifications	
Three-phase 400V	0.45	05DE	SGMGH-05D	1.2	1.7	FN258L -7/07	Three-phase AC 480V,7A	HI-15JCU (35A)
	1.0	10DE	SGMGH-09D	2.3	3.4			
			SGMSH-10D					
			SGMUH-10D					
	1.5	15DE	SGMGH-13D	3.2	4.6			
			SGMSH-15D					
			SGMUH-15D					
	2.0	20DE	SGMGH-20D	4.9	7.1	FN258L -16/07	Three-phase AC480V,16A	HI-20JCU (35A)
			SGMSH-20D					
	3.0	30DE	SGMGH-30D	6.8	9.8			
			SGMSH-30D					
			SGMUH-30D					

*1. This is the net value at the rated load. When actually selecting fuses, determine the capacity using the prescribed derating.
Braking characteristics at. 25°C : 200% for 2s min. 700% for 0.01s min.

*2. The FN type Noise filter is manufactured by SCHAFFNER.
The FMAC type Noise filter is manufactured by TIMONTA.

*3. Model of magnetic contactor is manufactured by YASKAWA CONTROLS.

3.2 Noise filter for brake power supply

FN2070-6/07 (Manufactured by SCHAFFNER) for 0.4kW or less Servomotor.

3.3 Cable specifications

Shielded cables should be used for the following cables.

AC power input line cable (between power supply and noise filter)

Servomotor cable (between Servopack and Servomotor)

Encoder cable (between Servopack and Servomotor encoder)

Controller cable (between Servopack CN1 and motion controller)

3.4 Recommendable ferrite core types

Cable Name		Ferrite Core Type	Manufacturer
Controller cable		ESD-SR-25	Tokin
Encoder cable			
Servomotor cable	400W max	ESD-SR-85	Tokin
	500W min	H3S T90x13.5x74	TDK

3.5 Shield Box

Closed metallic enclosure should be used for shielding electromagnetic interference. The box should have a structure which can assure the connection of the main body, door. cooling unit, etc., to the ground. The box opening should be as small as possible.