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Find the *Yaskawa SGDV-7R6A01A-085M-FCI* at our website: *Click HERE*

MECHATROLINK-II Communications Reference Type SERVOPACKs



SGDV-□□□□11

(For Rotary Servomotors)

SGDV-□□□□15

(For Linear Servomotors)

Model Designations

SGDV - R70 A 11 A □

Options

Code	Specifications
Blank	Base-mounted (standard)
001000	Rack-mounted*

*: SGDV-470A, -550A, -590A, -780A SERVOPACKs are duct-ventilated.

Design Revision Order
A, B…

Interface

Code	Specifications
11	MECHATROLINK-II communications Reference Type (for rotary servomotors)
15	MECHATROLINK-II communications Reference Type (for linear servomotors)

Voltage

Code	Specifications
F	100 VAC
A	200 VAC
D	400 VAC

Σ-V Series
SGDV SERVOPACK

Current

Code	100 V (Single Phase) Applicable Servomotor Max. Capacity kW	Code	200 V (Three Phase) Applicable Servomotor Max. Capacity kW	Code	400 V (Three Phase) Applicable Servomotor Max. Capacity kW
R70	0.05	R70*	0.05	1R9	0.5
R90	0.1	R90*	0.1	3R5	1.0
2R1	0.2	1R6*	0.2	5R4	1.5
2R8	0.4	2R8*	0.4	8R4	2.0
		3R8	0.5	120	3.0
		5R5*	0.75	170	5.0
		7R6	1.0	210	6.0
		120♣	1.5	260	7.5
		180	2.0	280	11
		200	3.0	370	15
		330	5.0		
		470	6.0		
		550	7.5		
		590	11		
		780	15		

NOTE: Shaded items are non-stock.

* These amplifiers can be powered with single or three-phase.

♣ SGDV-120A□1A008000, a special version of the 1.5kW amplifier can be used for single-phase operation.

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Features

●Real-time communications

MECHATROLINK-II communications enable high-speed control for 30 stations at a maximum transmission speed of 10 Mbps in a transmission cycle from 250 μs to 4 ms (user setting). Such a high transmission speed allows real-time transmission of various data required for control.

●Cost savings

Thirty stations can be connected to a single MECHATROLINK-II transmission line, so wiring costs and time are greatly reduced. Also, only one signal connector is required on the host controller. And, the all-digital network eliminates the need for conversion from digital to analog for speed/torque references and for a pulse generator to generate position references.

●High-precision motion control

The SGDV SERVOPACK when connected to the host controller in the MECHATROLINK-II network provides not only torque, position, and speed control but also synchronized phase control that requires advanced control technology. The control mode can be changed online so that the machine can move smoothly in complex motions with great efficiency.

Ratings

Single-phase 100 V

SERVOPACK Model SGDV-□□□□		R70F	R90F	2R1F	2R8F
Applicable Servomotor Max. Capacity	kW	0.05	0.1	0.2	0.4
Continuous Output Current	A_{rms}	0.66	0.91	2.1	2.8
Max. Output Current	A_{rms}	2.1	2.9	6.5	9.3
Main Circuit (Single Phase)		100 to 115 VAC+10% to −15% 50/60 Hz			
Control Circuit (Single Phase)		100 to 115 VAC+10% to −15% 50/60 Hz			

Single-phase 200 V

SERVOPACK Model SGDV-□□□□		R70A	R90A	1R6A	2R8A	5R5A	120
Applicable Servomotor Max. Capacity	kW	0.05	0.1	0.2	0.4	0.75	1.5
Continuous Output Current	A_{rms}	0.66	0.91	1.6	2.8	5.5	11.6
Max. Output Current	A_{rms}	2.1	2.9	6.5	9.3	16.9	28
Main Circuit (Single Phase)		220 to 230 VAC +10% to -15% 50/60 Hz					
Control Circuit (Single Phase)		220 to 230 VAC +10% to -15% 50/60 Hz					

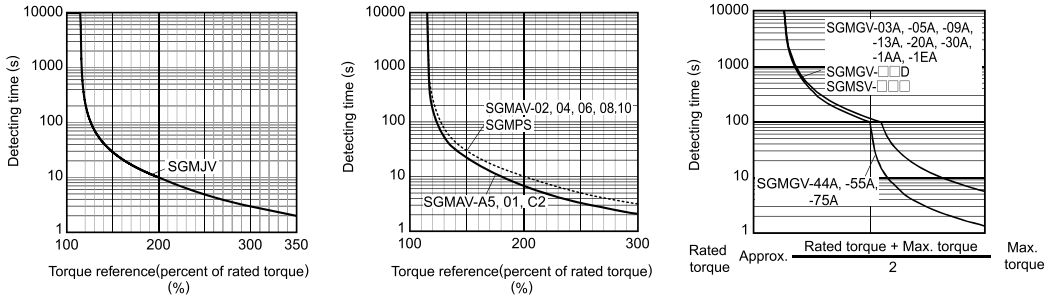
Three-phase 200 V

SERVOPACK Model SGDV-□□□□		R70A	R90A	1R6A	2R8A	3R8A	5R5A	7R6A	120A	180A	200A	330A	470A	550A	590A	780A
Applicable Servomotor Max. Capacity	kW	0.05	0.1	0.2	0.4	0.5	0.75	1.0	1.5	2.0	3.0	5.0	6	7.5	11	15
Continuous Output Current	A_{rms}	0.66	0.91	1.6	2.8	3.8	5.5	7.6	11.6	18.5	19.6	32.9	46.9	54.7	58.6	78
Max. Output Current	A_{rms}	2.1	2.9	6.5	9.3	11	16.9	17	28	42	56	84	110	130	140	170
Main Circuit		Three-phase 200 to 230 VAC+10% to −15% 50/60 Hz														
Control Circuit		Single-phase 200 to 230 VAC+10% to −15% 50/60 Hz														

Three-phase 400 V

SERVOPACK Model SGDV-□□□□		1R9D	3R5D	5R4D	8R4D	120D	170D	210D	260D	280D	370D
Applicable Servomotor Max. Capacity	kW	0.5	1.0	1.5	2.0	3.0	5.0	6	7.5	11	15
Continuous Output Current	A_{rms}	1.9	3.5	5.4	8.4	11.9	16.5	20.8	25.4	28.1	37.2
Max. Output Current	A_{rms}	5.5	8.5	14	20	28	42	55	65	70	85
Main Circuit		Three-phase 380 to 480 VAC+10% to −15% 50/60 Hz									
Control Circuit		24 VDC ±15%									

●SERVOPACK Overload Characteristics



Note: Overload characteristics shown above do not guarantee continuous duty of 100% or more output. Use a servomotor with effective torque within the continuous duty zone of Torque-Motor Speed Characteristics.

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Specifications

Items			Specifications
Input Power Supply	Main Circuit	100 V	Single-phase 100 to 115 VAC +10% to −15% 50/60 Hz
		200 V	Three-phase 200 to 230 VAC +10% to −15% 50/60 Hz
		400 V	Three-phase 380 to 480 VAC +10% to −15% 50/60 Hz
	Control Circuit	100 V	Single-phase 100 to 115 VAC +10% to −15% 50/60 Hz
		200 V	Single-phase 200 to 230 VAC +10% to −15% 50/60 Hz
		400 V	24 VDC ±15%
Control Method			For 100 V, for 200 V, for 400 V, single-phase or three-phase full-wave rectification IGBT PWM control, sine-wave driven
Feedback	Rotary Servomotors		Serial encoder: 13-bit (incremental encoder) : 17-bit (incremental/absolute encoder) : 20-bit (incremental/absolute encoder)
	Linear Servomotors		Serial converter or serial data
Operating Conditions	Surrounding/Storage Temperature		Surrounding temperature: 0 to +55°C, storage temperature: −20 to +85°C
	Ambient/Storage Humidity		90%RH or less (no condensation)
	Vibration/Shock Resistance		Vibration resistance: 4.9 m/s^2, Shock resistance: 19.8 m/s^2
	Protection class/Pollution degree		Protection class: IP 1X, pollution degree: 2 Do not use SERVOPACKs in the following locations: ·Locations subject to corrosive or flammable gases ·Locations subject to exposure to water, oil, or chemicals ·Locations subject to dust, including iron dust, and salts
	Others		Do not use SERVOPACKs in the following locations: ·Locations subject to static electricity noise, strong electromagnetic/magnetic fields, radioactivity
	Elevation		1000 m or less
Compliant Standards			UL 508C EN50178, EN55011 class A group 1, EN61800-3, EN61800-5-1
Configuration			Base-mounted (Rack-mounting available as an option for some models. 6 kW or more models are duct-ventilated.)
Performance	Speed Control Range		1:5000 (The lowest speed of the speed control range is the speed at which the servomotor will not stop with a rated torque load.)
	Speed Regulation*	Load Regulation	0% to 100% load: ±0.01% max. (at rated speed)
		Voltage Regulation	Rated voltage: ±10% : 0% (at rated speed)
		Temperature Regulation	25±25°C : ±0.1% max. (at rated speed)
	Torque Control Tolerance (Repeatability)		±1%
	Soft Start Time Setting		0 to 10 s (can be set individually for acceleration and deceleration.)
I/O Signals	Encoder Output Pulses		Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available.
Communications	RS-422A Communications	Interface	Digital operator, RS-422A port of personal computers etc.
		1:N communications	RS-422A port: N=15 max. available
		Axis address setting	Set by parameters
		Function	Status display, parameter settings, adjustment functions, utility functions
	USB Communications	Interface	Personal computers (application: engineering tool SigmaWin+)
		1:N communications	Compliant with USB1.1 standard
		Function	Status display, parameter settings, adjustment functions, utility functions
Display		Power Charge	CHARGE for main circuit power supply input confirmation One LED (orange)
Analog Monitor			Analog monitor connector built in for monitoring speed, torque and other reference signals. Number of points: 2
Protective Functions			Overcurrent, Overvoltage, low voltage, overload, regeneration error
Utility Functions			Alarm history, JOG operation, origin search, etc.
Regenerative Processing			100 VAC model: External regenerative resistor (optional) 200 VAC SGDV-R70A, -R90A, -1R6A, -2R8A: External regenerative resistor (optional) 200 VAC SGDV-470A, -550A, -590A, -780A: External regenerative resistor unit (optional) 200 VAC models other than shown above: Built-in regenerative resistor 400 VAC SGDV-210D, -260D, -280D, -370D: External regenerative resistor unit (optional) 400 VAC models other than shown above: Built-in regenerative resistor
Safety Functions		Input	/HWBB1, /HWBB2: Hard wire base block signal
		Output	EDM1: Status monitor (fixed output) of built-in safety circuit
		Compliant Standards	EN954 category 3 Stop category 0, IEC61508 SIL 2
Option Card Function		Feedback	Serial encoder communications input for fully-closed loop control

*: Speed regulation is defined as follows:

$$\text{Speed regulation} = \frac{\text{No-load motor speed} - \text{Total load motor speed}}{\text{Rated motor speed}} \times 100\%$$

The motor speed may change due to voltage variations or temperature variation. The ratio of speed changes to the rated speed represent speed regulation due to voltage and temperature variations.

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Specifications

●Rotary Servomotors

Items			Specifications	
I/O Signal	Encoder Output Pulses		Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available.	
	Sequence Input	Number of Channels	7 channels	
		Function	Signal allocations and positive/negative logics can be modified. Homing deceleration switch signal (/DEC), external latch signal (/EXT1 to 3), forward run prohibited (P-OT), reverse run prohibited (N-OT), forward current limit (/P-CL), reverse current limit (/N-CL)	
	Sequence Output	Fixed Output	Servo alarm (ALM)	
		Output Signals which can be allocated	Number of Channels	3 channels
			Function	Signal allocations and positive/negative logics can be modified. Positioning completion (/COIN), speed coincidence detection (/V-CMP), servomotor rotation detection (/TGON), servo ready (/S-RDY), torque limit detection (/CLT), speed limit detection (/VLT), brake interlock (/BK), warning (/WARN), NEAR (/NEAR)
Panel Operator		Display	7-segment 1-digit LED (red)	
		Switch	Rotary switch: 16 positions, DIP switch: 4 poles	
MECHATROLINK Communications		Communications Protocol	MECHATROLINK-II	MECHATROLINK-I
		Transmission Speed	10 Mbps	4 Mbps
		Transmission Cycle	250 μs, 0.5 to 4.0 ms (multiple of 0.5 ms)	2 ms
		Number of Words for Link Transmission	Can be switched between 17-bytes /station and 32-bytes / station.	17-bytes /station
		Station Address	41H to 5FH (max. number of slaves: 30)	
Command Method		Performance	Position control, speed control, and torque control through MECHATROLINK communications	
		Command Input	MECHATROLINK commands (for sequence, motion, data setting/reference, monitor, adjustment, and other commands.)	

●Linear Servomotors

Items			Specifications	
I/O Signal	Encoder Output Pulses		Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available.	
	Sequence Input	Number of Channels	7 channels	
		Function	Signal allocations and positive/negative logics can be modified. Homing deceleration switch signal (/DEC), external latch signal (/EXT1 to 3), forward run prohibited (P-OT), reverse run prohibited (N-OT), forward current limit (/P-CL), reverse current limit (/N-CL)	
	Sequence Output	Fixed Output	Servo alarm (ALM)	
		Output Signals which can be allocated	Number of Channels	3 channels
			Function	Signal allocations and positive/negative logics can be modified. Positioning completion (/COIN), speed coincidence detection (/V-CMP), servomotor movement detection (/TGON), servo ready (/S-RDY), force limit detection (/CLT), speed limit detection (/VLT), brake interlock (/BK), warning (/WARN), NEAR (/NEAR)
Panel Operator		Display	7-segment 1-digit LED (red)	
		Switch	Rotary switch: 16 positions, piano switch: 4 poles	
MECHATROLINK Communications		Communications Protocol	MECHATROLINK-II	MECHATROLINK-I
		Transmission Speed	10 Mbps	4 Mbps
		Transmission Cycle	250 μs, 0.5 to 4.0 ms (multiple of 0.5 ms)	2 ms
		Number of Words for Link Transmission	Can be switched between 17-bytes /station and 32-bytes / station.	17-bytes /station
		Station Address	41H to 5FH (max. number of slaves: 30)	
Command Method		Performance	Position control, speed control, and force control through MECHATROLINK-II communications	
		Command Input	MECHATROLINK commands and MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment, and other commands.)	

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Power Supply Capacities and Power Losses

The following table shows SERVOPACK's power supply capacities and power losses at the rated output.

Main Circuit Power Supply	Applicable Servomotor Max. Capacity kW	SERVOPACK Model SGDV-	Power Supply Capacity kVA	Output Current A	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
Signal-phase 100 V	0.05	R70F	0.2	0.66	5.4	—	17	22.4
	0.1	R90F	0.3	0.91	7.8			24.8
	0.2	2R1F	0.7	2.1	14.4			31.4
	0.4	2R8F	1.4	2.8	25.6			42.6
Single-phase 200 V	0.05	R70A	0.2	0.66	5.2	—	17	22.2
	0.1	R90A	0.3	0.91	7.4			24.4
	0.2	1R6A	0.7	1.6	13.7			30.7
	0.4	2R8A	1.2	2.8	24.9			41.9
	0.75	5R5A	1.9	5.5	52.7	8		77.7
	1.5	120A	4	11.6	68.2	10	22	100.2
Three-phase 200 V	0.05	R70A	0.2	0.66	5.1	—	17	22.1
	0.1	R90A	0.3	0.91	7.3			24.3
	0.2	1R6A	0.6	1.6	13.5			30.5
	0.4	2R8A	1	2.8	24.0			41.0
	0.5	3R8A	1.4	3.8	20.1	8		45.1
	0.75	5R5A	1.6	5.5	43.8			68.8
	1.0	7R6A	2.3	7.6	53.6			78.6
	1.5	120A	3.2	11.6	65.8	10	22	97.8
	2.0	180A	4	18.5	111.9	16		149.9
	3.0	200A	5.9	19.6	113.8			161.4
	5.0	330A	7.5	32.9	263.7	36	27	326.7
	6.0	470A	10.7	46.9	279.4	(180)*1	33	312.4
	7.5	550A	14.6	54.7	357.8	(350)*2		390.8
	11	590A	21.7	58.6	431.7		48	479.7
	15	780A	29.6	78	599.0			647.0
Three-phase 400 V	0.5	1R9D	1.1	1.9	24.6	14	21	59.6
	1.0	3R5D	2.3	3.5	46.1			81.1
	1.5	5R4D	3.5	5.4	71.3			106.3
	2.0	8R4D	4.5	8.4	77.9	28	25	130.9
	3.0	120D	7.1	11.9	108.7			161.7
	5.0	170D	11.7	16.5	161.1	36	24	221.1
	6.0	210D	12.4	20.8	172.7	(180)*3	27	199.7
	7.5	260D	14.4	25.7	218.6			245.6
	11	280D	21.9	28.1	294.6	(350)*4	30	324.6
	15	370D	30.6	37.2	403.8			433.8

*1: For the optional JUSP-RA04-E regenerative resistor unit.
*2: For the optional JUSP-RA05-E regenerative resistor unit.
*3: For the optional JUSP-RA18-E regenerative resistor unit.
*4: For the optional JUSP-RA19-E regenerative resistor unit.

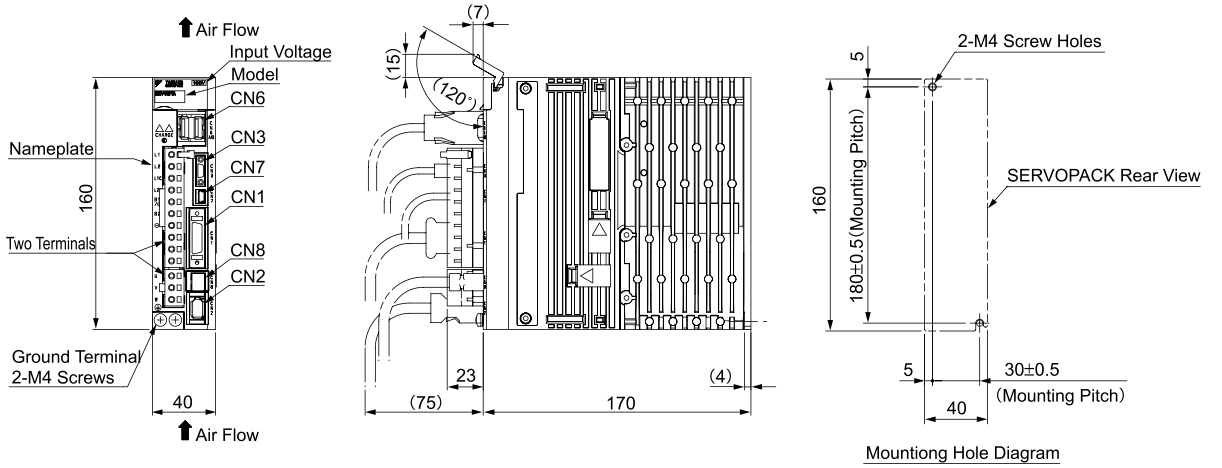
Notes: 1 SGDV-R70F, -R90F, -2R1F, -2R8F, -R70A, -R90A, -1R6A, and -2R8A SERVOPACKs do not have built-in regenerative resistors.
If the regenerative energy exceeds the specified value, connect an external regenerative resistor (optional).
2 SGDV-470A, -550A, -590A, -780A, -210D, -260D, -280D, -370D SERVOPACKs do not have built-in regenerative resistors.
Be sure to connect a regenerative resistor unit (optional) or an external regenerative resistor (optional). For selection details, refer to page 339.
3 Regenerative resistor power losses are allowable losses. Take the following action if this value is exceeded.
· Remove the lead or short bar that is short-circuiting the SERVOPACK main circuit terminal B2 and B3.
(SGDV-3R8A, -5R5A, -7R6A, -120A, -180A, -200A, -330A, or 400-V class SERVOPACKs.)
· Install an external regenerative resistor (optional). For selection details, refer to page 339.

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External Dimensions Units: mm

●Base-mounted SERVOPACKs

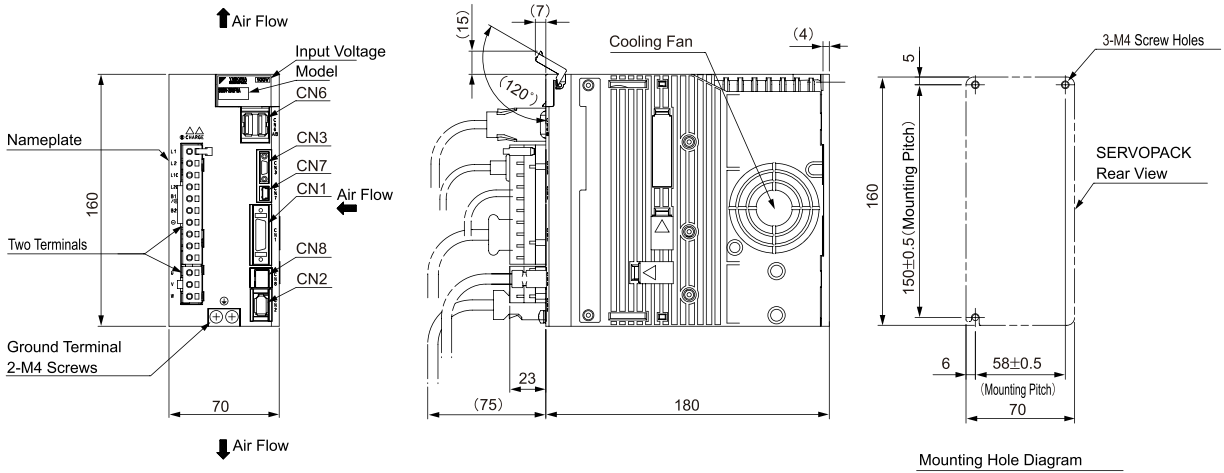
(1) Single-phase 100 VAC, Model: SGDV-R70F1□A, -R90F1□A, and -2R1F1□A



Mountiong Hole Diagram

Approx. Mass: 1.0 kg

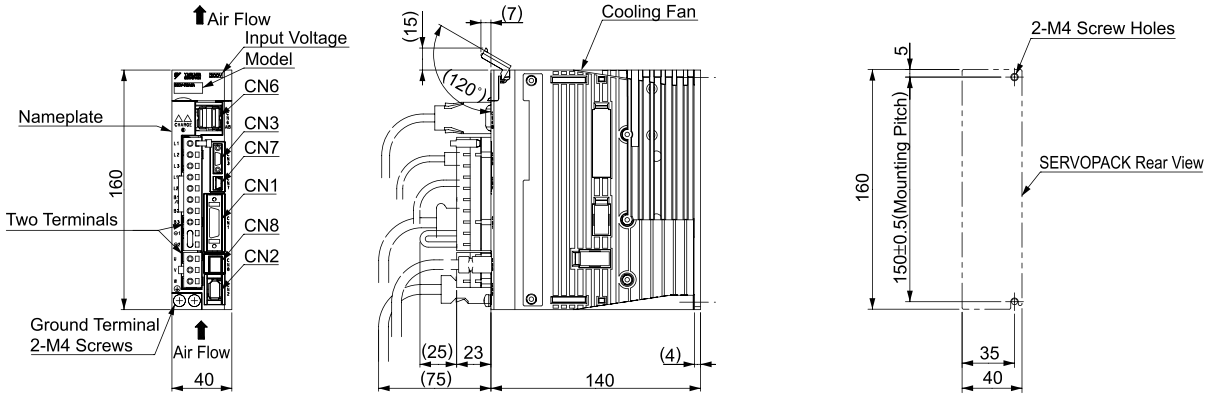
(2) Single-phase 100 VAC, Model: SGDV-2R8F1□A



Mounting Hole Diagram

Approx. Mass: 1.5 kg

(3) Three-phase 200 VAC, Model: SGDV-R70A1□A, -R90A1□A, and -1R6A1□A



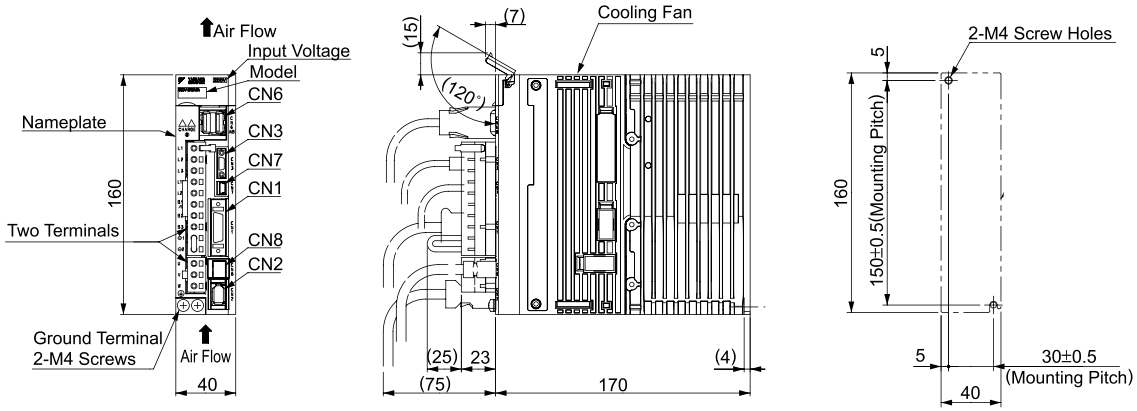
Mounting Hole Diagram

Approx. Mass: 0.9 kg

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External Dimensions Units: mm

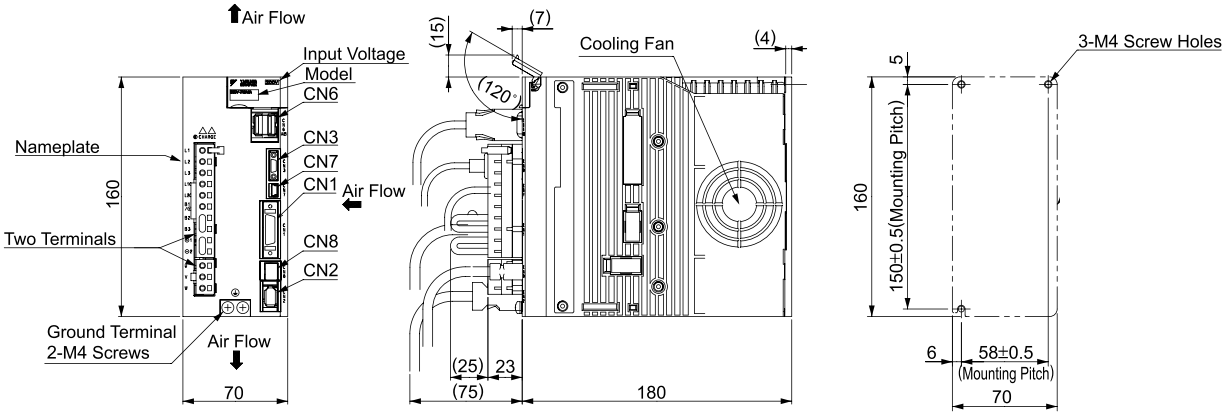
(4) Three-phase 200 VAC, Model: SGDV-2R8A1□A



Mounting Hole Diagram

Approx. Mass: 1.0 kg

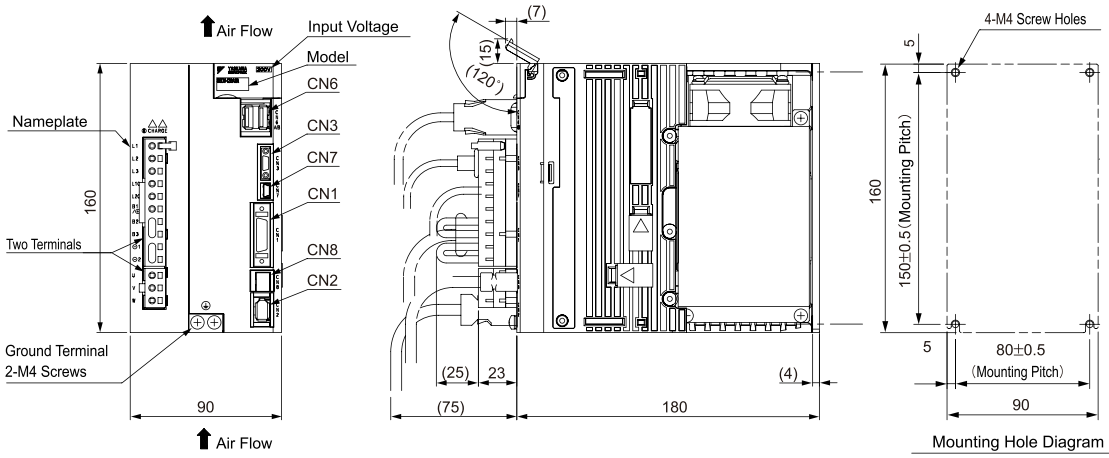
(5) Three-phase 200 VAC, Model: SGDV-3R8A1□A, -5R5A1□A, and -7R6A1□A



Mounting Hole Diagram

Approx. Mass: 1.5 kg

(6) Three-phase 200 VAC, Model: SGDV-120A1□A



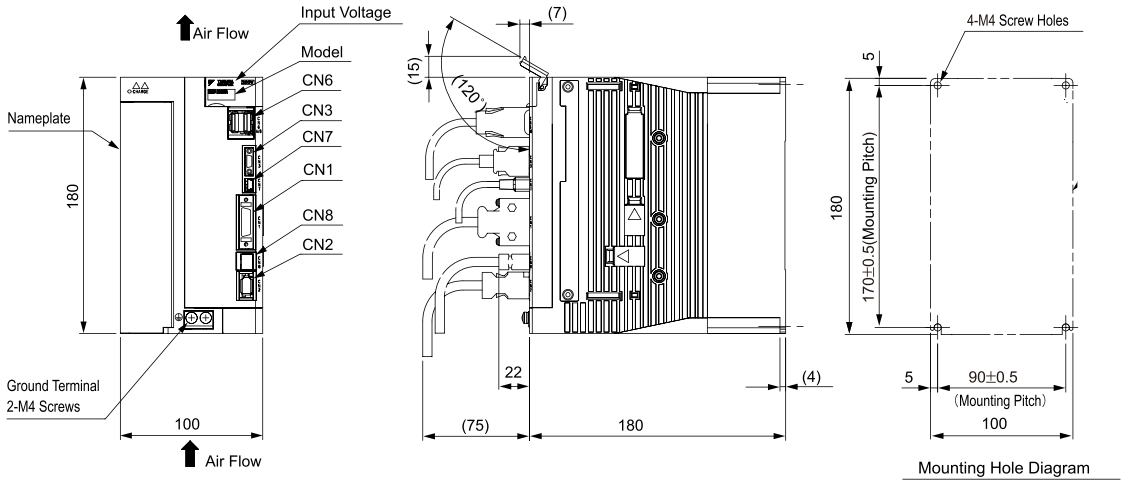
Mounting Hole Diagram

Approx. Mass: 2.4 kg

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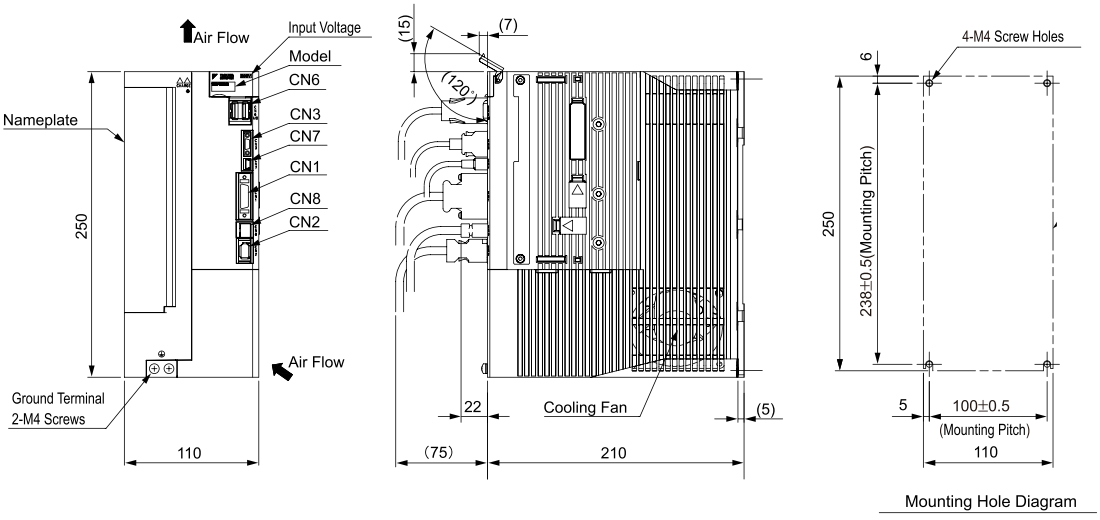
External Dimensions Units: mm

(7) Single-phase 200 VAC, Model: SGDV-120A1□A008000 (1.5 kW, single-phase input type)
Three-phase 200 VAC, Model: SGDV-180A1□A and -200A1□A



Approx. Mass: 2.8 kg

(8) Three-phase 200 VAC, Model: SGDV-330A1□A

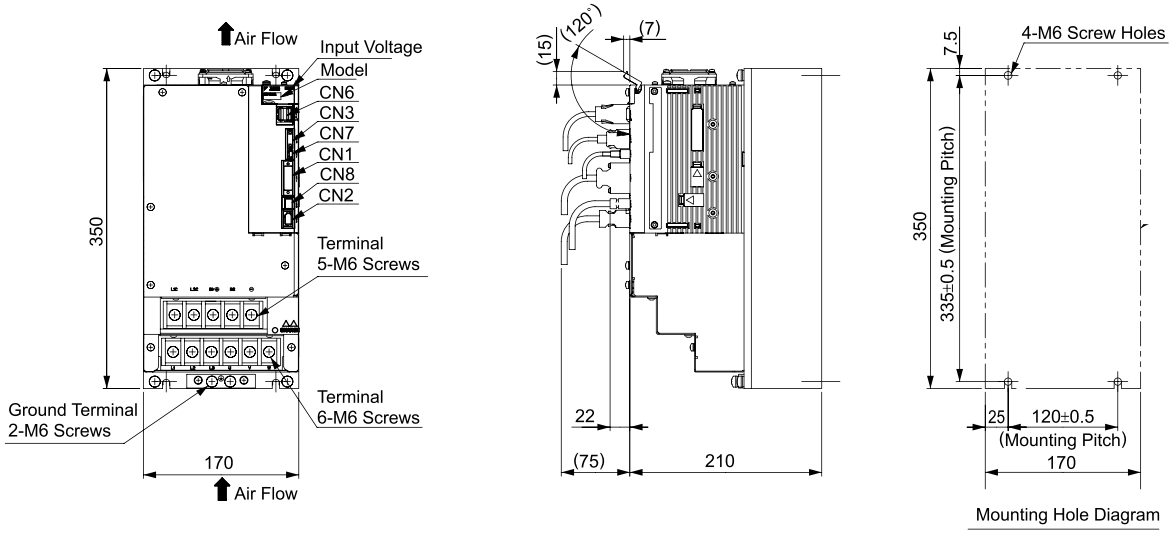


Approx. Mass: 4.6 kg

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External Dimensions Units: mm

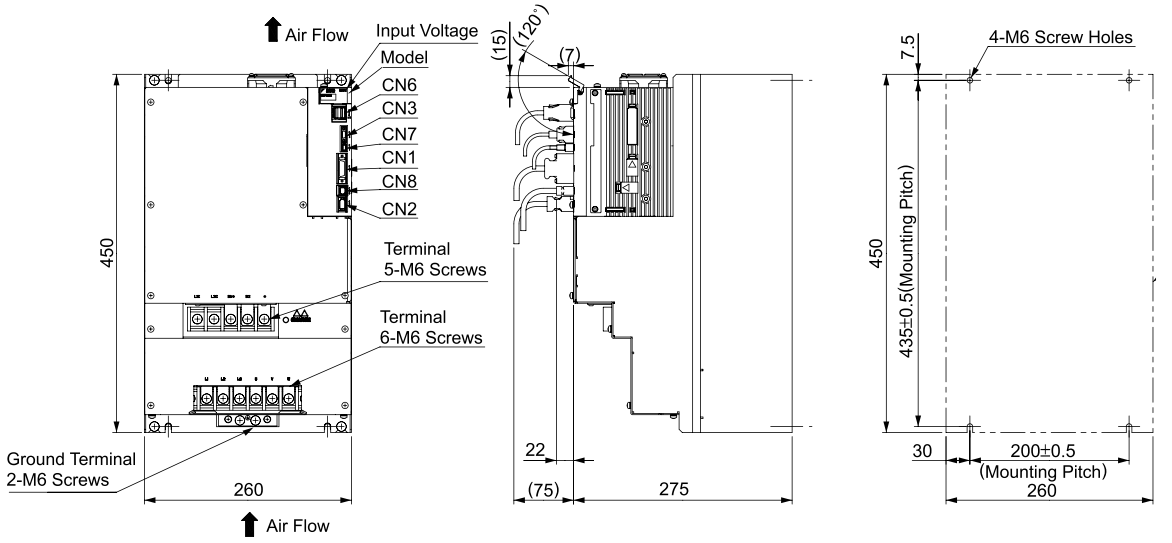
(9) Three-phase 200 VAC, Model: SGDV-470A1□A and -550A1□A



Mounting Hole Diagram

Approx. Mass:10.2 kg

(10) Three-phase 200 VAC, Model: SGDV-590A1□A and -780A1□A



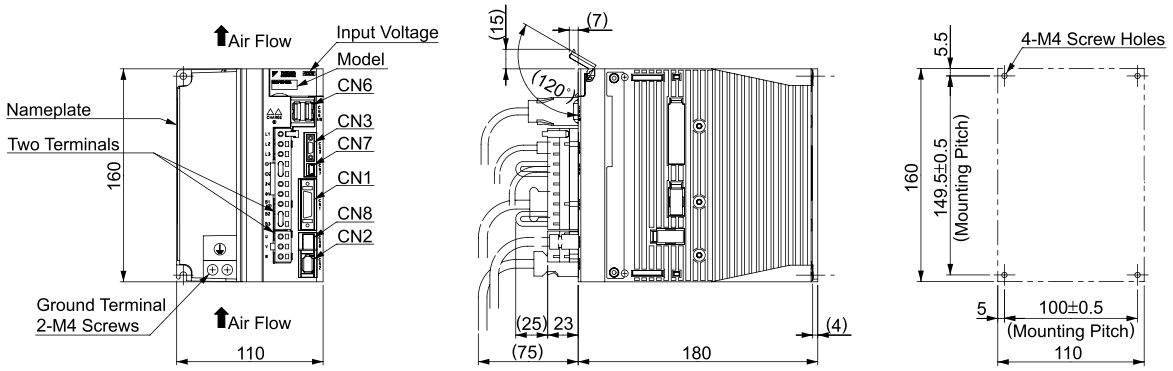
Mounting Hole Diagram

Approx. Mass: 21.0 kg

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External Dimensions Units: mm

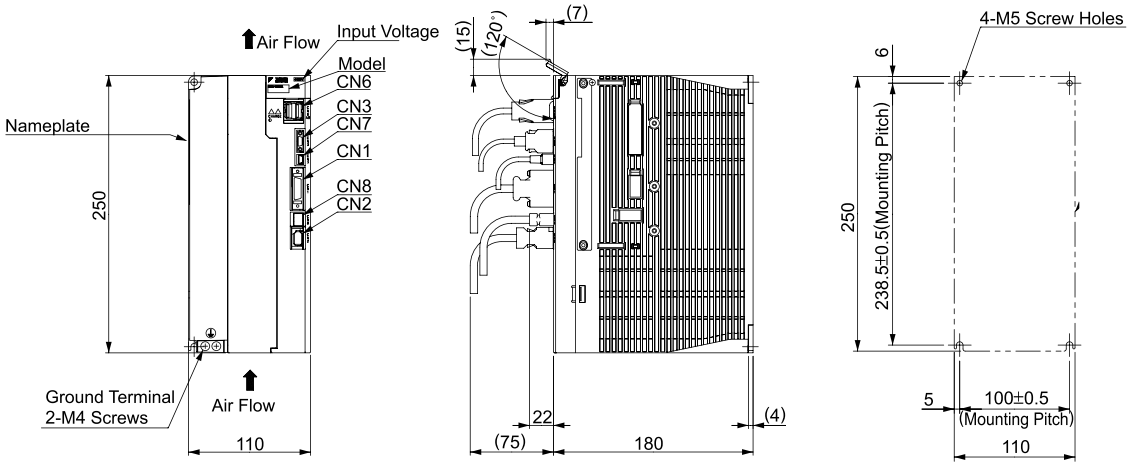
(11) Three-phase 400 VAC, Model: SGDV-1R9D1□A, -3R5D1□A, and -5R4D1□A



Mounting Hole Diagram

Approx. Mass: 2.7 kg

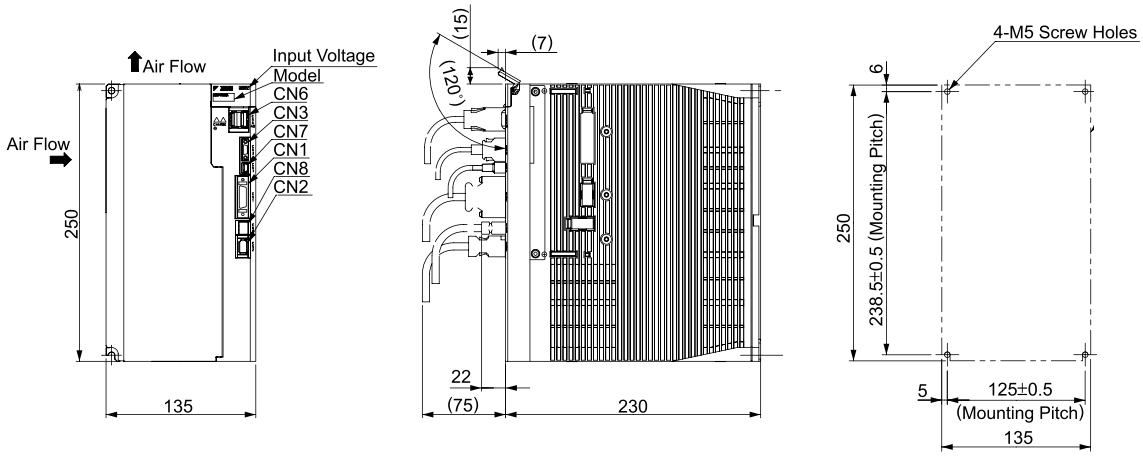
(12) Three-phase 400 VAC, Model: SGDV-8R4D1□A, and -120D1□A



Mounting Hole Diagram

Approx. Mass: 3.7 kg

(13) Three-phase 400 VAC, Model: SGDV-170D1□A



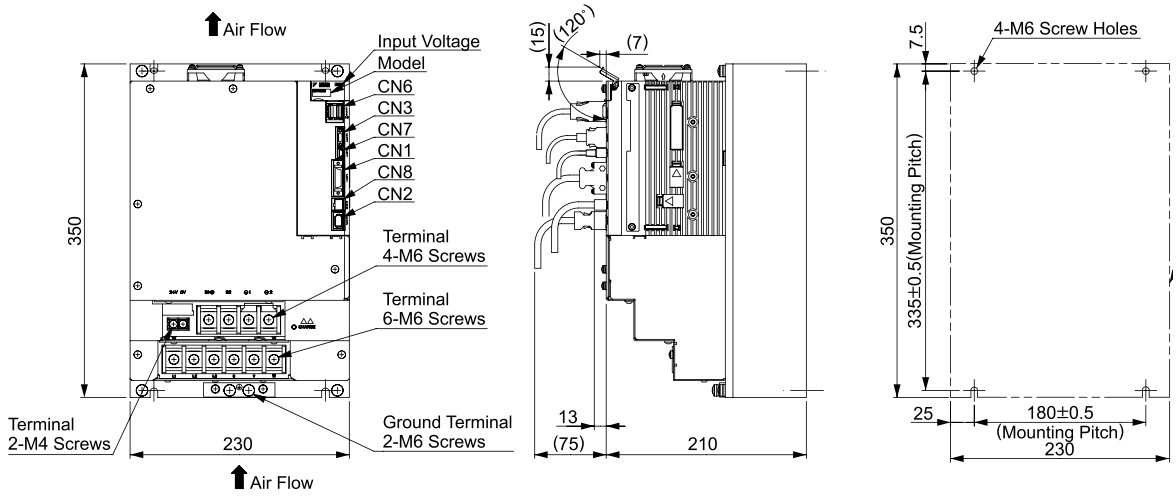
Mounting Hole Diagram

Approx. Mass: 5.6 kg

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External Dimensions Units: mm

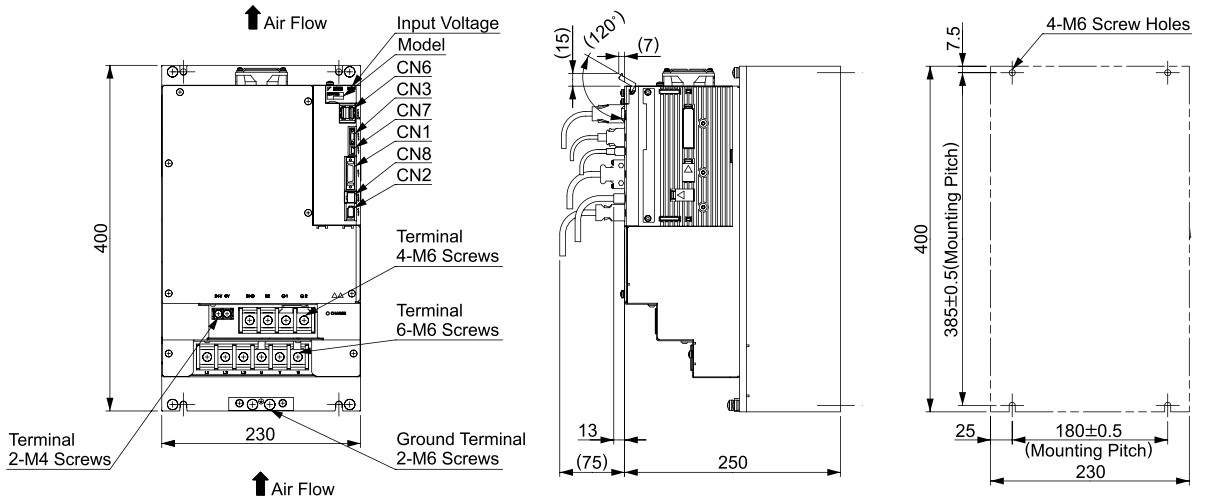
(14) Three-phase 400 VAC, Model: SGDV-210D1□A and -260D1□A



Mounting Hole Diagram

Approx. Mass: 11.3 kg

(15) Three-phase 400 VAC, Model: SGDV-280D1□A and -370D1□A



Mounting Hole Diagram

Approx. Mass: 16.2 kg

Connectors for Base-mounted SERVOPACKs

Port	Model	Pin	Manufacturer
CN1	10226-52A2PL	26	Sumitomo 3M Ltd.
CN2	53984-0671	6	Molex Japan Co., Ltd.
CN3	HDR-EC14LFDTN-SLE-PLUS	14	Honda Tsushin Kogyo Co., Ltd.
CN6	1903815-1	8	Tyco Electronics AMP K.K.
CN7	MNC23-5K5H00	5	ADVANCED-CONNECTEK INC.
CN8	1981080-1	8	Tyco Electronics AMP K.K.

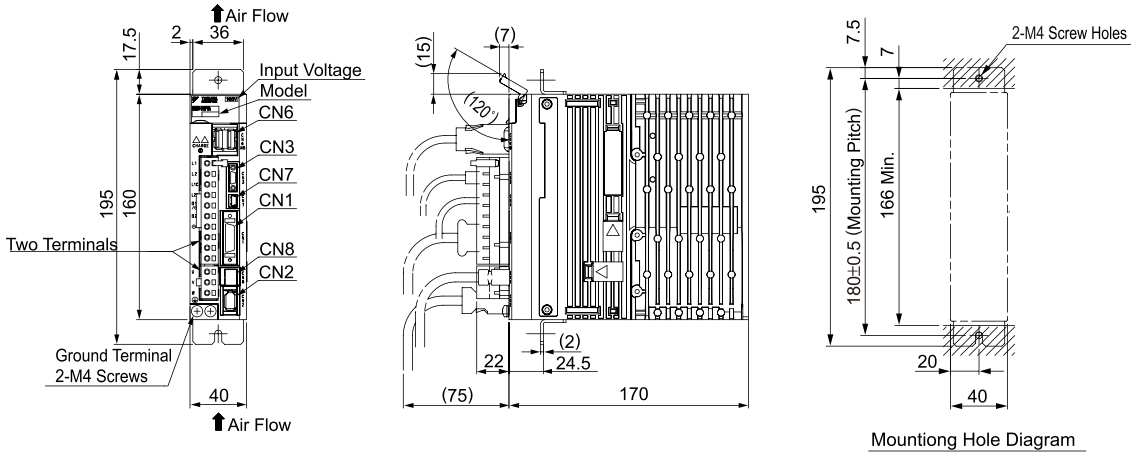
Note: The connectors above or their equivalents are used for SERVOPACKs.

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External Dimensions Units: mm

● Rack-mounted SERVOPACKs (6 kW or more models: duct-ventilated)

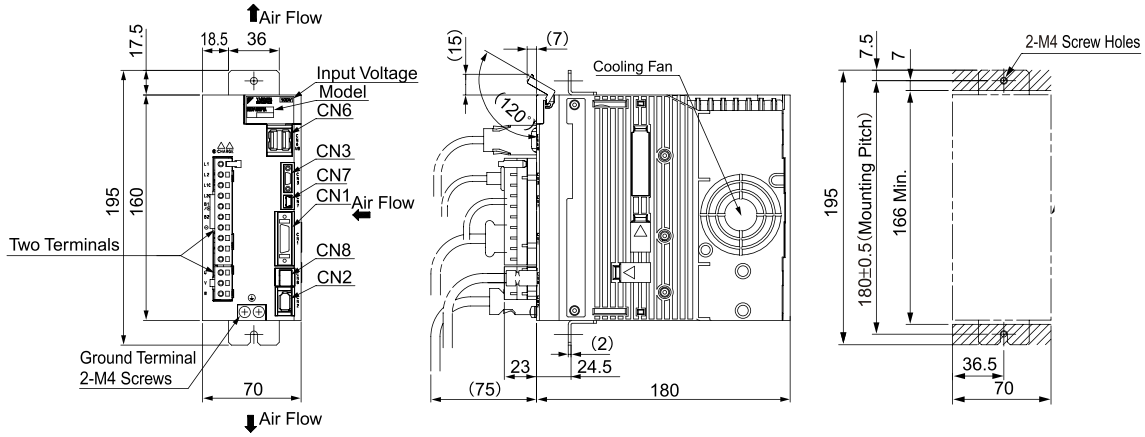
(1) Single-phase 100 VAC, Model: SGDV-R70F1□A001, -R90F1□A001, and -2R1F1□A001



Mountiong Hole Diagram

Approx. Mass: 1.1 kg

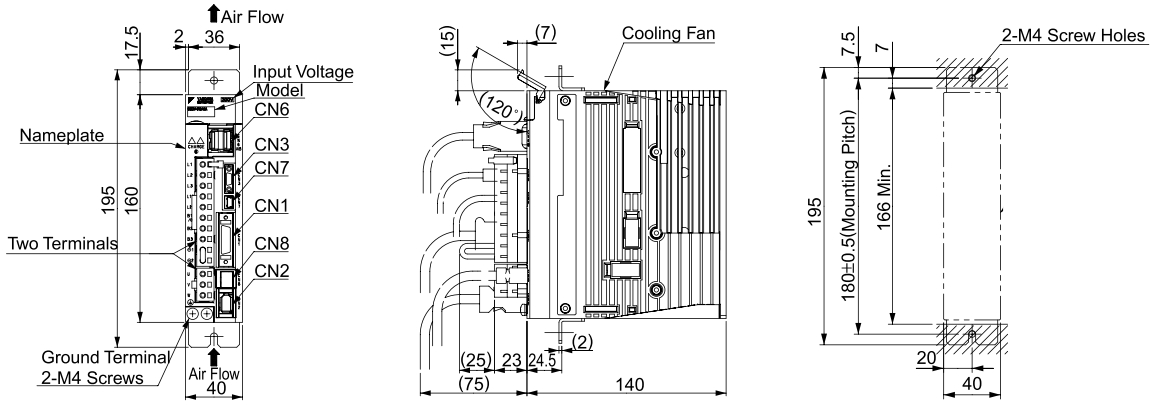
(2) Single-phase 100 VAC, Model: SGDV-2R8F1□A001



Mountiong Hole Diagram

Approx. Mass: 1.5 kg

(3) Three-phase 200 VAC, Model: SGDV-R70A1□A001, -R90A1□A001, and -1R6A1□A001



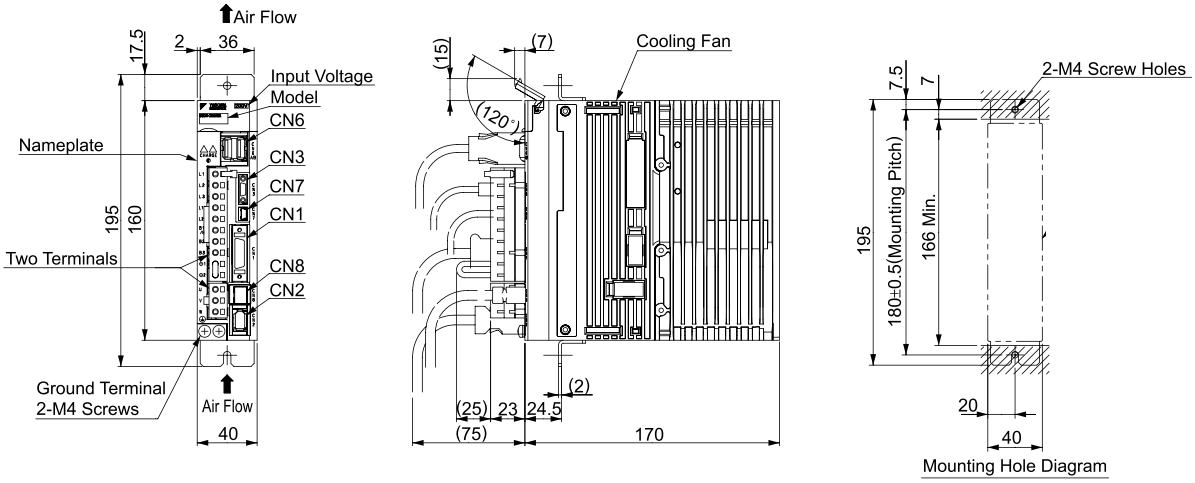
Mounting Hole Diagram

Approx. Mass: 0.9 kg

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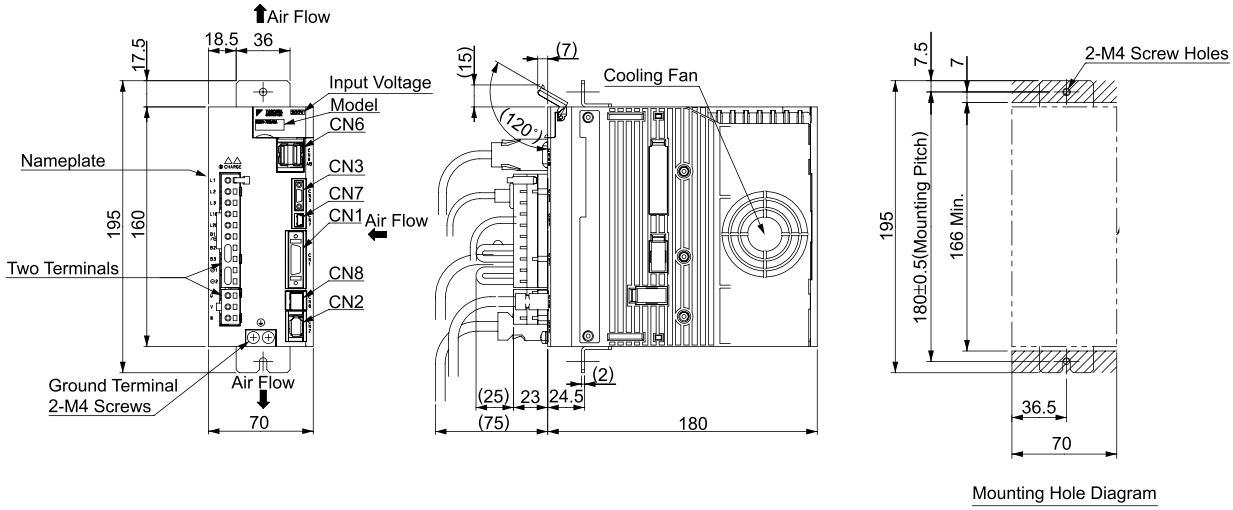
External Dimensions Units: mm

(4) Three-phase 200 VAC, Model: SGDV-2R8A1□A001



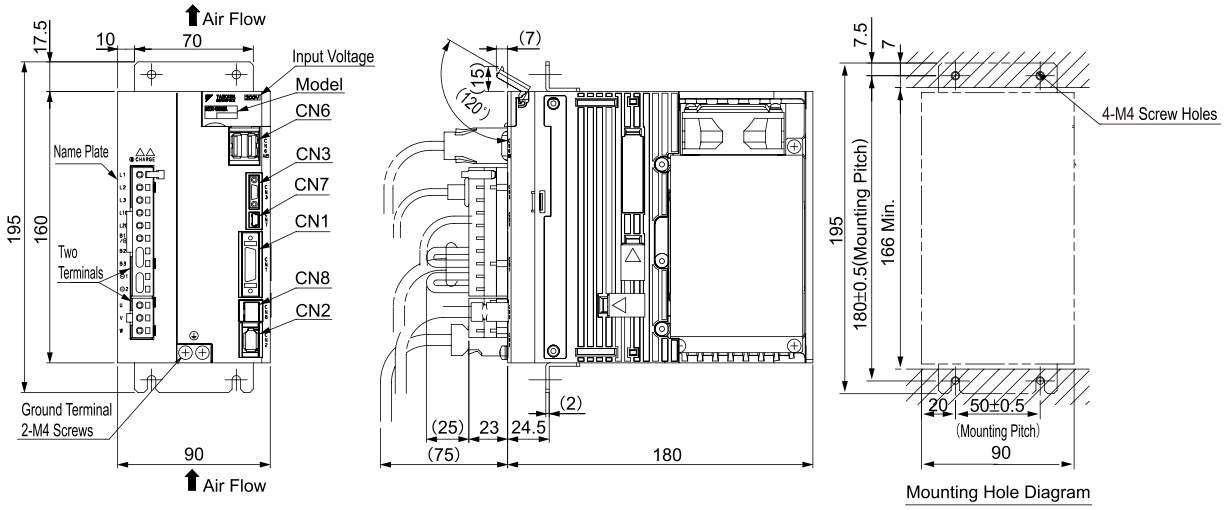
Approx. Mass: 1.0 kg

(5) Three-phase 200 VAC, model: SGDV-3R8A1□A001, -5R5A1□A001, and -7R6A1□A001



Approx. Mass: 1.5 kg

(6) Three-phase 200 VAC, Model: SGDV-120A1□A001

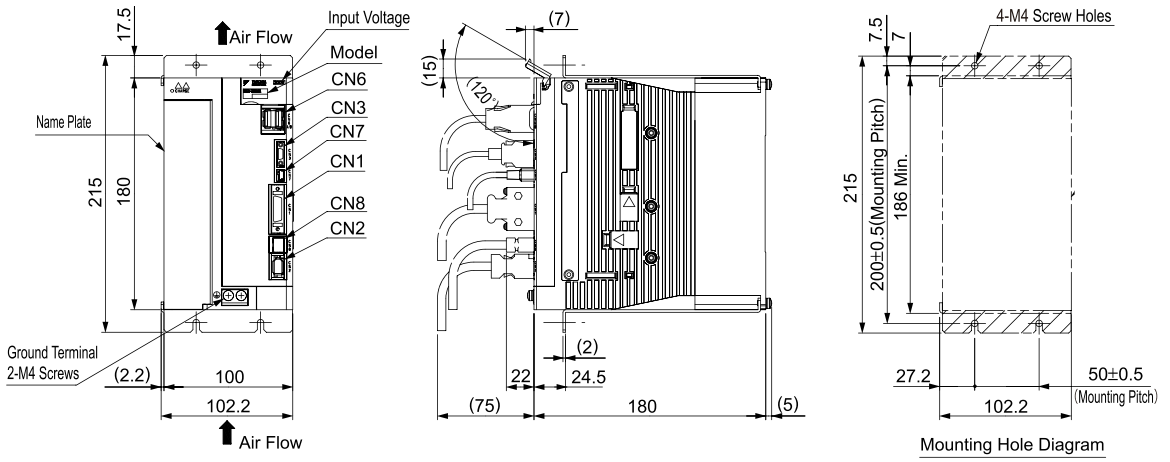


Approx. Mass: 2.5 kg

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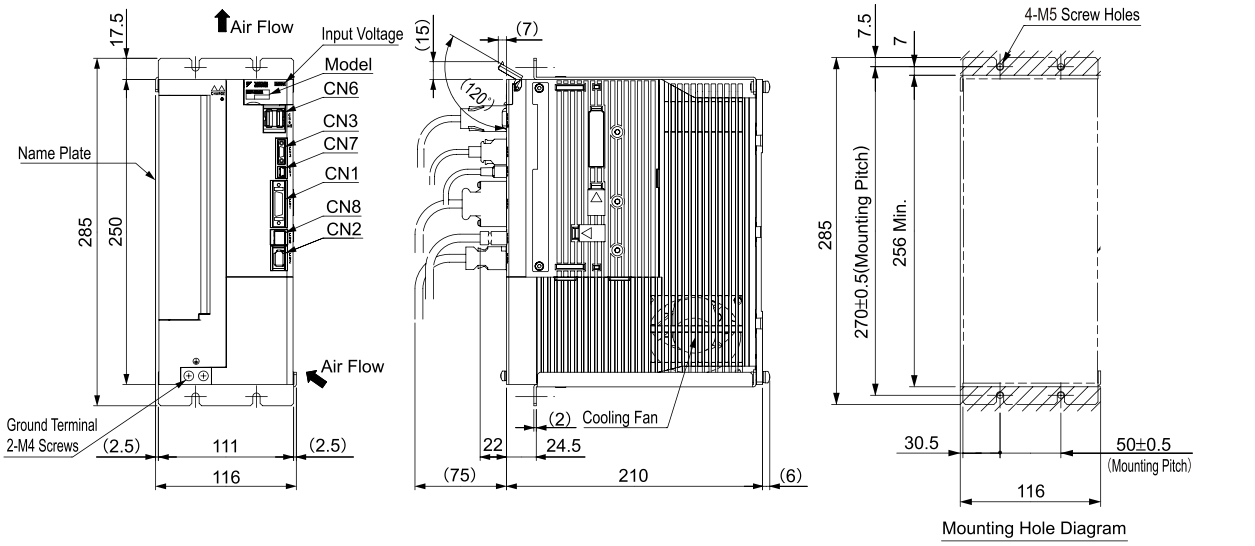
External Dimensions Units: mm

(7) Single-phase 200 VAC, Model: SGDV-120A1□A008000 (1.5 kW, single-phase input type)
Three-phase 200 VAC, Model: SGDV-180A1□A001 and -200A1□A001



Approx. Mass: 3.1 kg

(8) Three-phase 200 VAC, Model: SGDV-330A1□A001

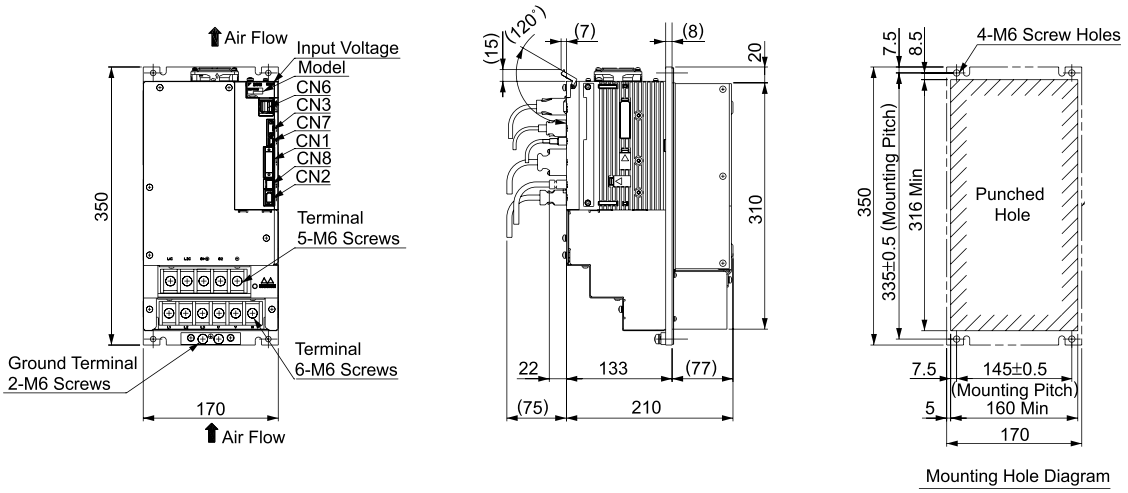


Approx. Mass: 5.0 kg

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External Dimensions Units: mm

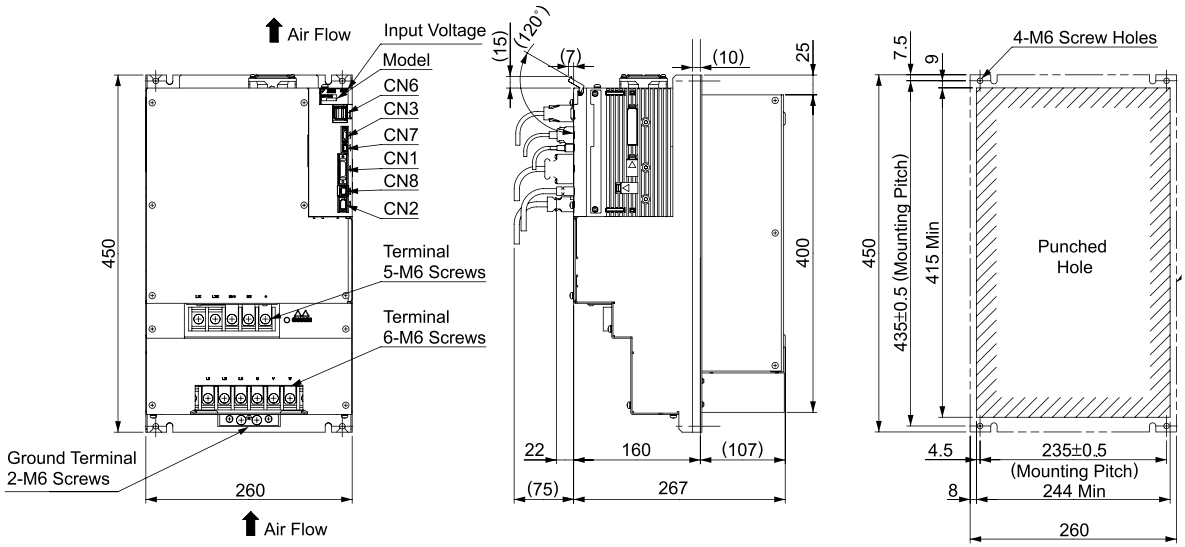
(9) Three-phase 200 VAC, Model: SGDV-470A1□A001 and -550A1□A001 (Duct-ventilated type)



Mounting Hole Diagram

Approx. Mass: 8.5 kg

(10) Three-phase 200 VAC, Model: SGDV-580A1□A001 and -780A1□A001 (Duct-ventilated type)



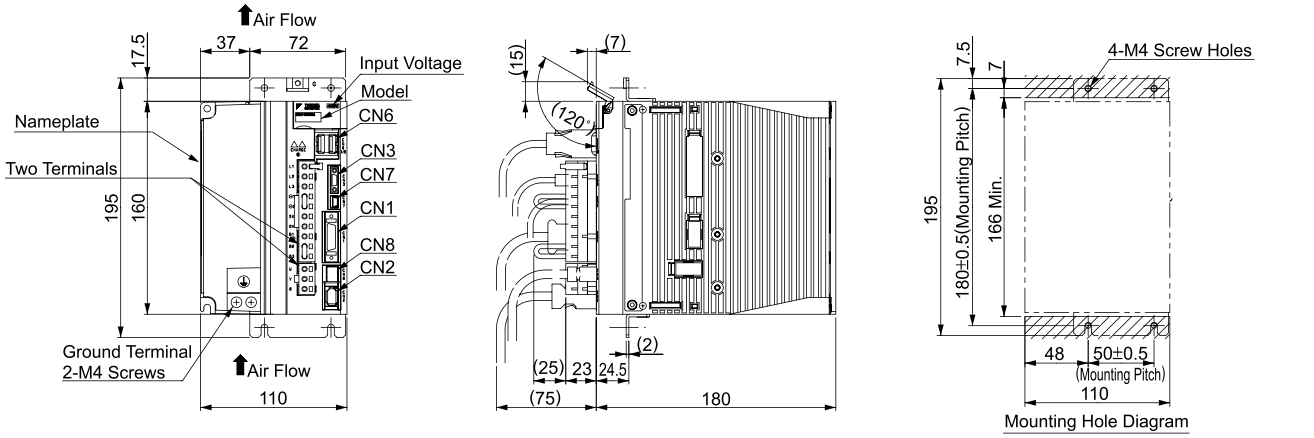
Mounting Hole Diagram

Approx. Mass: 16.0 kg

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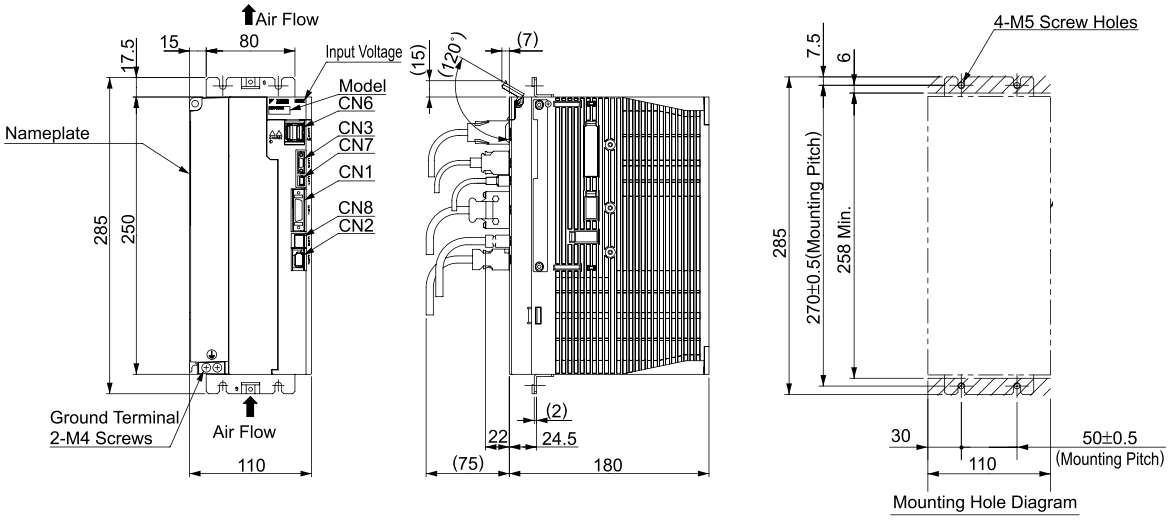
External Dimensions Units: mm

(11) Three-phase 400 VAC, Model: SGDV-1R9D1□A001, -3R5D1□A001, and -5R4D1□A001



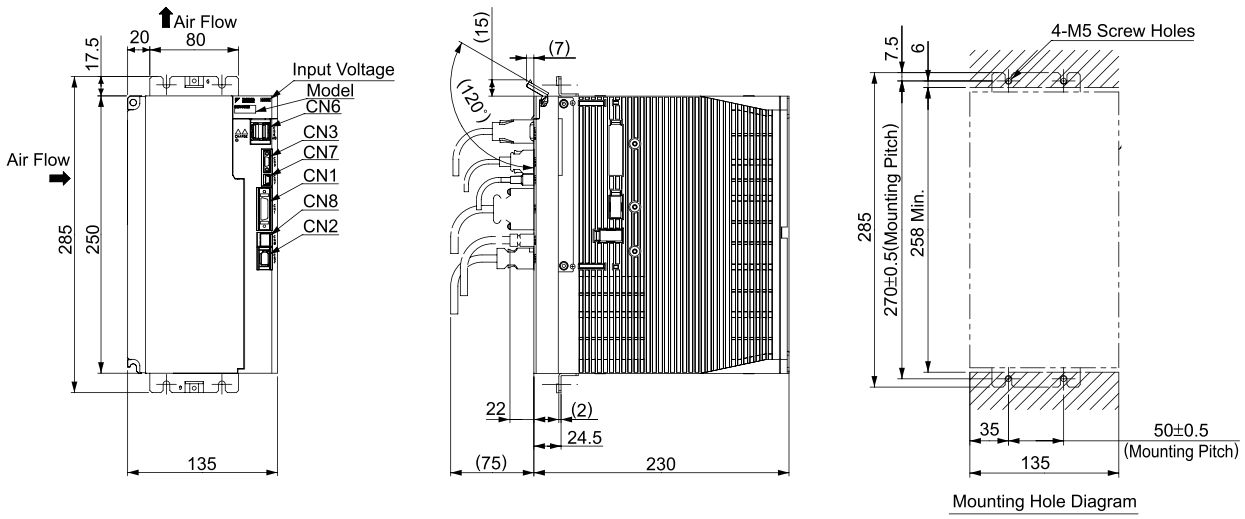
Approx. Mass: 2.7 kg

(12) Three-phase 400 VAC, Model: SGDV-8R4D1□A001 and -120D1□A001



Approx. Mass: 3.8 kg

(13) Three-phase 400 VAC, Model: SGDV-170D1□A001

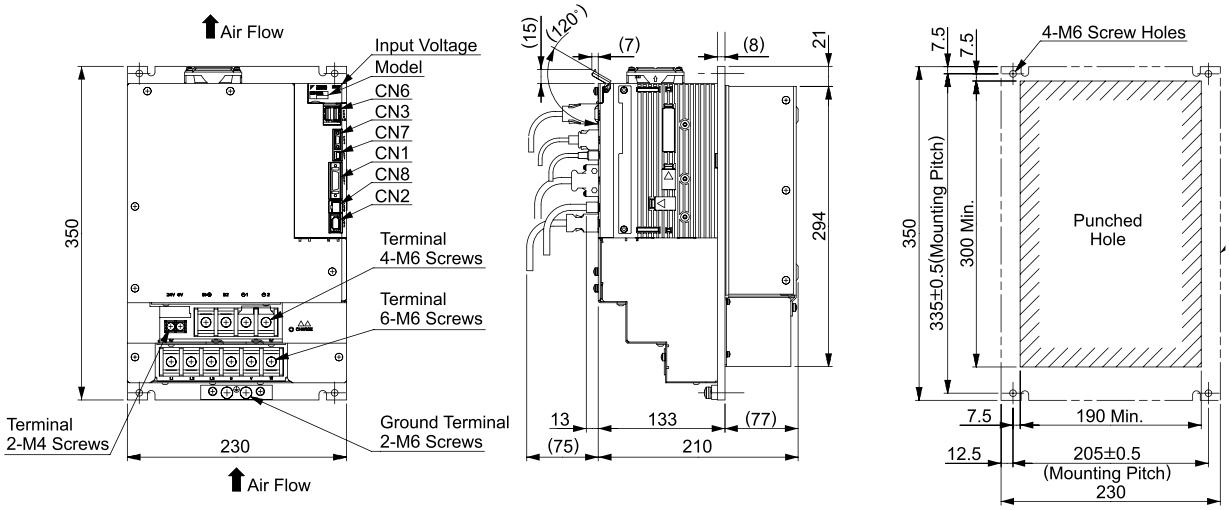


Approx. Mass: 5.7 kg

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External Dimensions Units: mm

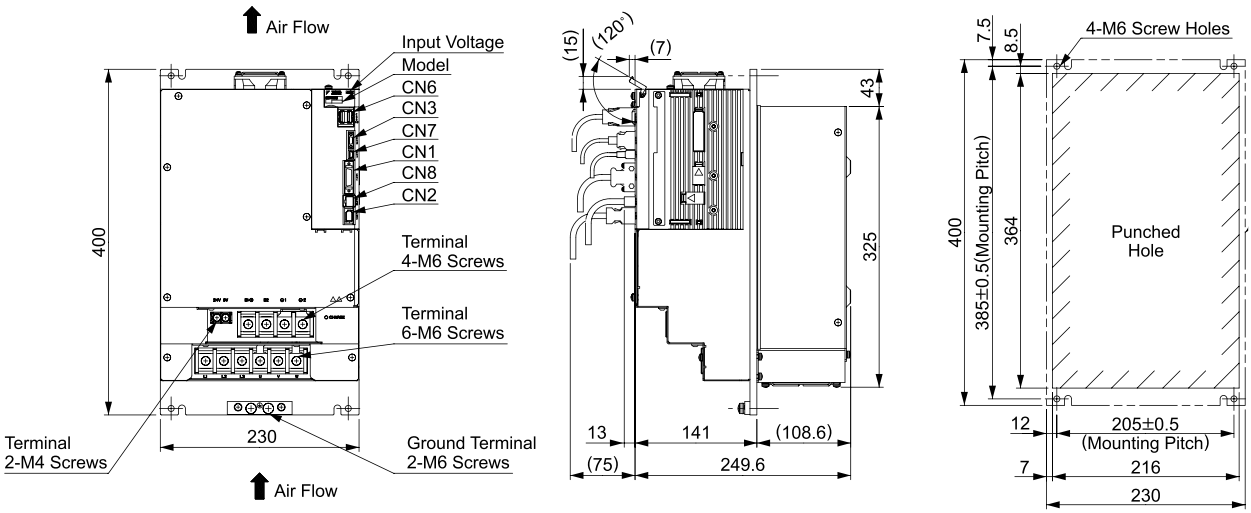
(14) Three-phase 400 VAC, Model: SGDV-210D1□A001 and -260D1□A001 (Duct-ventilated type)



Mounting Hole Diagram

Approx. Mass: 8.1 kg

(15) Three-phase 400 VAC, Model: SGDV-280D1□A001 and -370D1□A001 (Duct-ventilated type)



Mounting Hole Diagram

Approx. Mass: 13.6 kg

Connectors for Rack-mounted SERVOPACKs

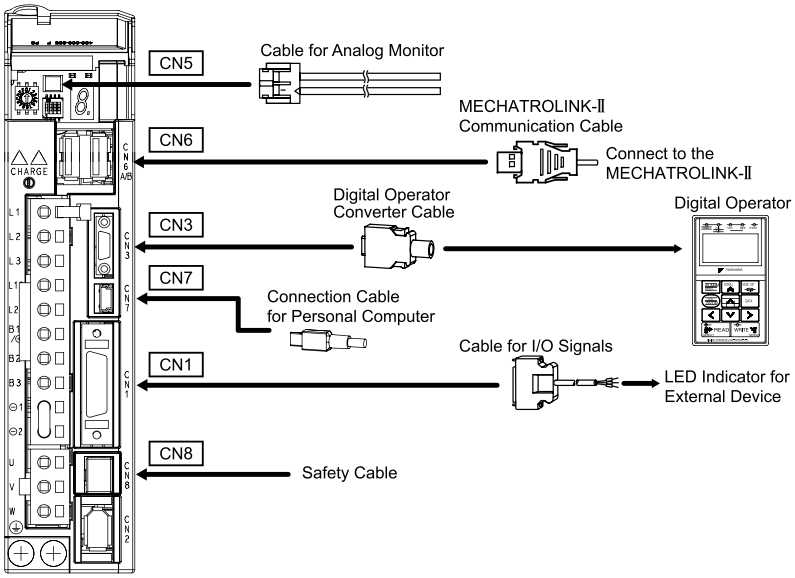
Port	Model	Pin	Manufacturer
CN1	10226-52A2PL	26	Sumitomo 3M Ltd.
CN2	53984-0671	6	Molex Japan Co., Ltd.
CN3	HDR-EC14LFDTN-SLE-PLUS	14	Honda Tsushin Kogyo Co., Ltd.
CN6	1903815-1	8	Tyco Electronics AMP K.K.
CN7	MNC23-5K5H00	5	ADVANCED-CONNECTEK INC.
CN8	1981080-1	8	Tyco Electronics AMP K.K.

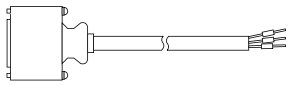
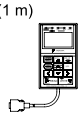
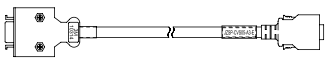
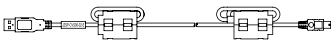
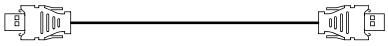
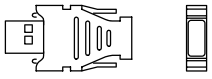
Note: The connectors above or their equivalents are used for SERVOPACKs.

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Selecting Cables

● Cables for CN1 CN3 CN5 CN6 CN7 CN8 (MECHATROLINK-II Communications Reference Type SERVOPACKs)



Name		Length	Order No.	Specifications	Details
CN1 Cables for I/O Signals	Connector Kit		JZSP-CSI9-2-E	Soldered 	(1)
	Connector Terminal Converter Unit	0.5 m	SBK-U-VBA-A5	Terminal Block and 0.5 m Connection Cable 	(2)
		1 m	SBK-U-VBA-01		
		3 m	SBK-U-VBA-03		
	Cable with Loose wire at One End	1 m	JZSP-CSI02-1-E		(3)
		2 m	JZSP-CSI02-2-E		
		3 m	JZSP-CSI02-3-E		
CN3	Digital Operator		JUSP-OP05A-1-E	With Connection Cable (1 m) 	(4)
	Digital Operator Converter Cable*1	0.3 m	JZSP-CVS05-A3-E	Cable with Connectors at Both Ends 	(5)
CN7 Connection Cables for Personal Computer		2.5 m	JZSP-CVS06-02-E	Cable with Connectors at Both Ends 	(9)
CN6A CN6B MECHATROLINK-II Communication Cable	Cables with Connectors at Both Ends	0.5 m	JEPMC-W6002-A5-E		(7)
		1 m	JEPMC-W6002-01-E		
		–	JEPMC-W6002-□□-E		
	Terminator		JEPMC-W6022-E		(8)
CN5 Cables for Analog Monitor		1 m	JZSP-CA01-E	SERVOPACK End 	(6)
CN8 Cables for Safety Functions	Cables with Connector*2	3 m	JZSP-CVH03-03-E		(10)
	Connector kit*3		Contact Tyco Electronics AMP K.K. Product name : Industrial Mini I/O D-shape Type1 Plug Connector Kit Model : 2013595-1		

*1 : A converter cable is required to use Σ-Ⅲ series digital operators (model: JUSP-OP05A) for Σ-Ⅴ series SERVOPACKs.
*2 : When using the safety function, connect this cable to the safety devices.
Even when not using the safety function, use SERVOPACKs with the Safe Jumper Connector (model: JZSP-CVH05-E) connected.
*3 : Use the connector kit when you make cables yourself.

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Selecting Cables Units: mm

(1) Connector Kit for CN1

Use the following connector and cable to assemble the cable. The CN1 connector kit includes one case and one connector.

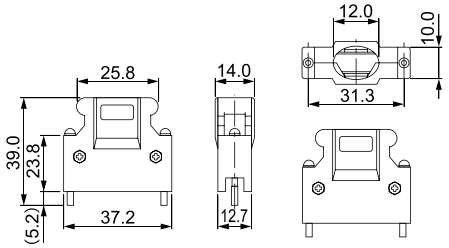
Connector Kit Model	Case		Connector	
	Model	Qty	Model	Qty
JZSP-CSI9-2-E	10326-52A0-008*	1 set	10126-3000PE* (Soldered)	1

* : Manufactured by Sumitomo 3M Ltd.

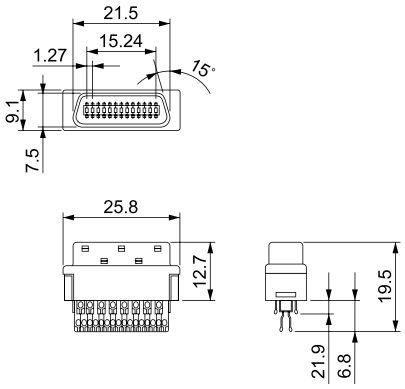
· Cable Size

Item	Specifications
Cable	Use twisted-pair or twisted-pair shielded wire.
Applicable Wires	AWG24, 26, 28, 30
Cable Finished Diameter	16 dia. max.

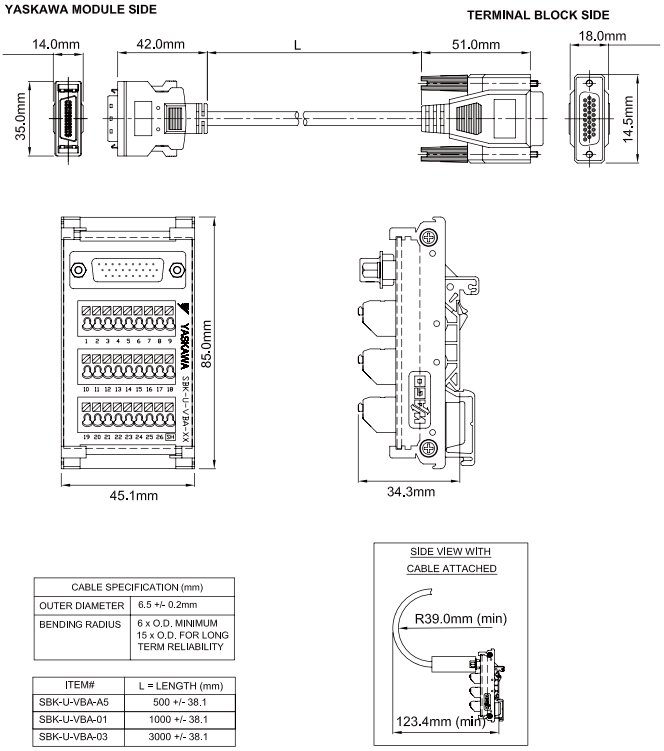
· Dimensional Drawings of Case



· Dimensional Drawings of Connector



(2) Connector Terminal Converter Unit for CN1 (SBK-U-VBA-xx)



CABLE SPECIFICATION (mm)	
OUTER DIAMETER	6.5 +/- 0.2mm
BENDING RADIUS	6 x O.D. MINIMUM 15 x O.D. FOR LONG TERM RELIABILITY

ITEM#	L = LENGTH (mm)
SBK-U-VBA-A5	500 +/- 38.1
SBK-U-VBA-01	1000 +/- 38.1
SBK-U-VBA-03	3000 +/- 38.1

SBK-U-VBA-xx Function Chart for SGDV Servo Amplifier

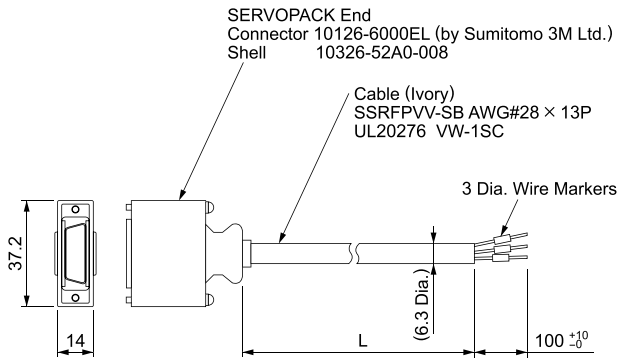
Pin No.	SGDV Mechatrolink-II type / SGDV Option type	
	Signal	Function
1	/BK+ (/SO1+)	Brake interlock output (+) (General purpose output 1 (+))
2	/BK- (/SO1-)	Brake interlock output (-) (General purpose output 1 (-))
3	ALM+	Servo alarm output (+)
4	ALM-	Servo alarm output (-)
5	-	
6	+24VIN	Control power supply for sequence signal input
7	P-OT (/SI1)	Forward run prohibited input (General purpose input 1)
8	N-OT (/SI2)	Reverse run prohibited input (General purpose input 2)
9	/DEC (/SI3)	Zero-point return deceleration switch input (General purpose input 3)
10	/EXT1 (/SI4)	External latch signal 1 input (General purpose input 4)
11	/EXT2 (/SI5)	External latch signal 2 input (General purpose input 5)
12	/EXT3 (/SI6)	External latch signal 3 input (General purpose input 6)
13	/SI0	General purpose input 0
14	BAT (+)	Battery (+) input
15	BAT (-)	Battery (-) input
16	SG	Signal ground
17	PAO	Phase-A pulse output (+)
18	/PAO	Phase-A pulse output (-)
19	PBO	Phase-B pulse output (+)
20	/PBO	Phase-B pulse output (-)
21	PCO	Phase-C pulse output (+)
22	/PCO	Phase-C pulse output (-)
23	/SO2+	General purpose output 2 (+)
24	/SO2-	General purpose output 2 (-)
25	/SO3+	General purpose output 3 (+)
26	/SO3-	General purpose output 3 (-)

Note: General purpose input and output signals are shown with their default signals assigned - signal assignment may have been changed by parameter

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Selecting Cables Units: mm

(3) Cable with Loose Wires at One End for CN1
Dimensional Drawings of Cable



Model	Cable Length
JZSP-CSI02-1-E	1 m
JZSP-CSI02-2-E	2 m
JZSP-CSI02-3-E	3 m

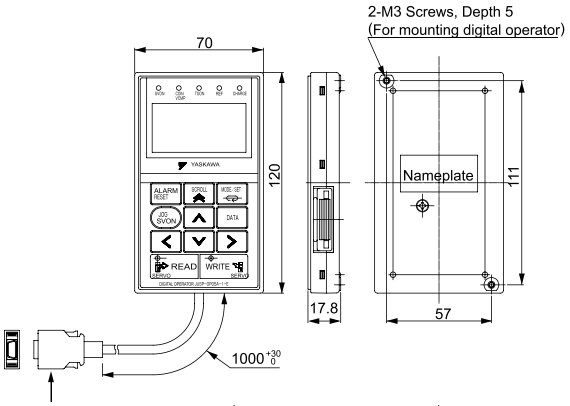
●Cable with Loose Wires at One End for CN1
Connection Diagram of JZSP-CSI02-□-E Cable

SERVOPACK End / Host Controller End

Pin No.	Signal	Wire Color	Marking Color	Marking Dots	Lead Marker
1	/BK+	Blue	Red	1	1
2	/BK−	Blue	Black	1	2
3	ALM+	Pink	Red	1	3
4	ALM−	Pink	Black	1	4
5	–	Green	Red	1	5
6	+24VIN	Green	Black	1	6
7	P-OT	Orange	Red	1	7
8	N-OT	Orange	Black	1	8
9	/DEC	Gray	Red	1	9
10	/EXT1	Gray	Black	1	10
11	/EXT2	Blue	Red	2	11
12	/EXT3	Blue	Black	2	12
13	/SI0	Pink	Red	2	13
14	BAT (+)	Green	Red	2	14
15	BAT (−)	Green	Black	2	15
16	SG	Pink	Black	2	16
17	PAO	Orange	Red	2	17
18	/PAO	Orange	Black	2	18
19	PBO	Gray	Red	2	19
20	/PBO	Gray	Black	2	20
21	PCO	Blue	Red	3	21
22	/PCO	Blue	Black	3	22
23	/SO2+	Pink	Red	3	23
24	/SO2−	Pink	Black	3	24
25	/SO3+	Green	Red	3	25
26	/SO3−	Green	Black	3	26

: Represents twisted-pair wires.

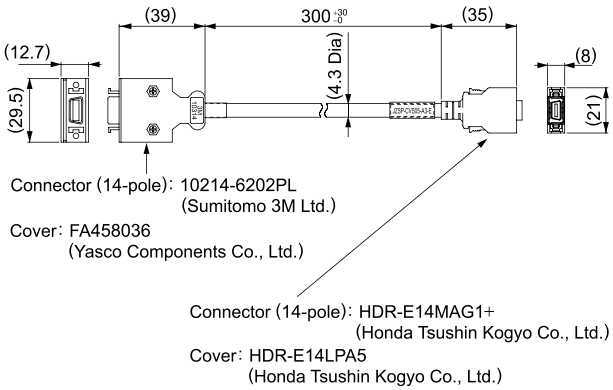
(4) Digital Operator (Model: JUSP-OP05A-1-E)



(5) Digital Operator Converter Cable for CN3
(Model: JZSP-CVS05-A3-E)

A converter cable is required to use Σ-Ⅲ series digital operators (model: JUSP-OP05A) for Σ-Ⅴ series SERVOPACKs.

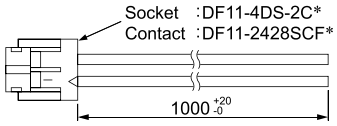
· Dimensional Drawings



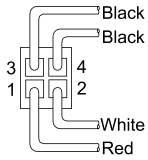
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(6) Cable for Analog Monitor for CN5
(Model: JZSP-CA01-E)

· Dimensional Drawings



* : Manufactured by Hirose Electric Corporation.



View from Cable End

· Specifications

Pin No.	Cable Color	Signal	Standard Settings
1	Red	Analog Monitor 2	Motor speed : 1V/1000 min^{-1}
2	White	Analog Monitor 1	Torque reference : 1V/100% rated torque
3, 4	Black (2 cables)	GND(0V)	–

Note : The specifications above are factory settings. Monitor specifications can be changed by changing parameters Pn006 and Pn007.

(7) MECHATROLINK-II Communications Cable for CN6
(Model: JEPMC-W6002-□□-E)

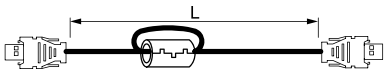
· Dimensional Drawings

①Cable with Connectors at Both Ends



Model	Cable Length(L)
JEPMC-W6002-A5-E	0.5 m
JEPMC-W6002-01-E	1.0 m
JEPMC-W6002-03-E	3.0 m
JEPMC-W6002-05-E	5.0 m
JEPMC-W6002-10-E	10.0 m
JEPMC-W6002-20-E	20.0 m
JEPMC-W6002-30-E	30.0 m
JEPMC-W6002-40-E	40.0 m
JEPMC-W6002-50-E	50.0 m

②Cable with Ferrite Core

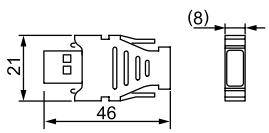


Model	Cable Length (L)
JEPMC-W6003-A5-E	0.5 m
JEPMC-W6003-01-E	1.0 m
JEPMC-W6003-03-E	3.0 m
JEPMC-W6003-05-E	5.0 m
JEPMC-W6003-10-E	10.0 m
JEPMC-W6003-20-E	20.0 m
JEPMC-W6003-30-E	30.0 m
JEPMC-W6003-40-E	40.0 m
JEPMC-W6003-50-E	50.0 m

IMPORTANT Use a MECHATROLINK-II communications cable specified by Yaskawa. When using other cables, noise resistance may be reduced, and operation cannot be guaranteed.

(8) MECHATROLINK-II Terminator for CN6
(Model : JEPMC-W6022-E)

· Dimensional Drawings

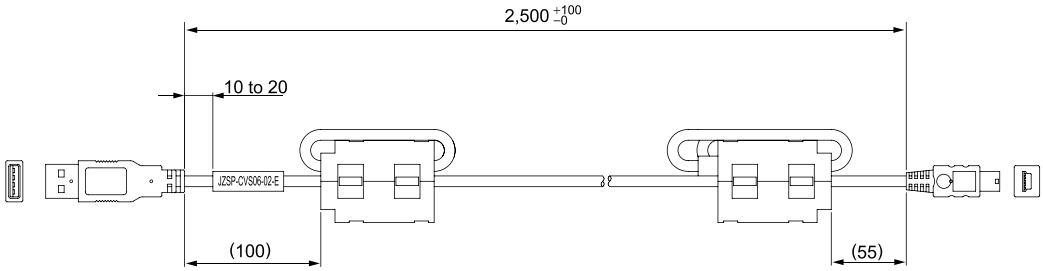


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Selecting Cables Units: mm

(9) Connection Cable for Personal Computer for CN7
(Model: JZSP-CVS06-02-E)

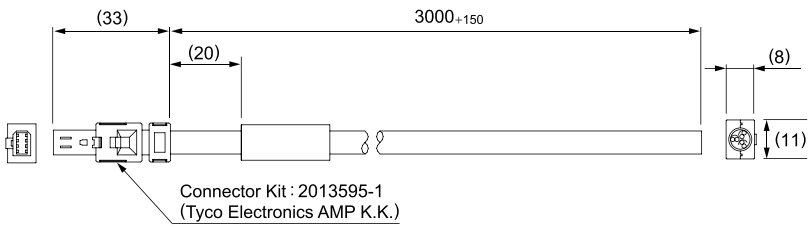
· Dimensional Drawings



IMPORTANT Use a cable specified by Yaskawa.
When using other cables, operation cannot be guaranteed.

(10) Cable with Connector for CN8
(Model: JZSP-CVH03-03-E)

· Dimensional Drawings



· Specifications

Pin No.	Signal	Lead Color	Marking Color
1	Not used	−	−
2	Not used	−	−
3	/HWBB1−	White	Black
4	/HWBB1+	White	Red
5	/HWBB2−	Gray	Black
6	/HWBB2+	Gray	Red
7	EDM1−	Orange	Black
8	EDM1+	Orange	Red

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