RoHS RoHS-Compliant
Inverter
FE100/FE200

●Additional Information●
Technical reference ➜ Page F-1
Safety standards ➜ Page G-2

A new inverter that enables speed control to be set easily, with a built-in digital display.
The inverter parameters have been set exclusively for Oriental Motor's three-phase motors, enabling the motor performance to be maximized by simply setting the output power.

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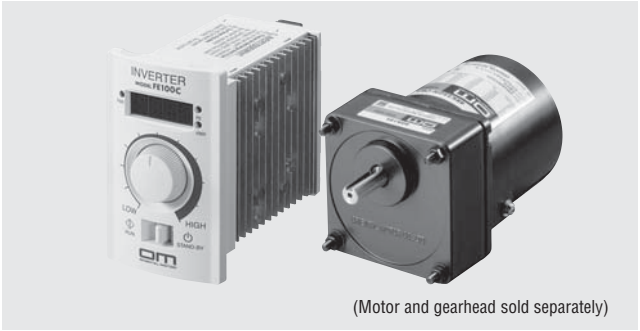
●List of safety standard approved products (Model, Standards, File No., Certification Body) ➜ Page G-10



(Motor and gearhead sold separately)

■Features

●Digital Display

The set speed is displayed digitally in frequency (Hz) or speed (r/min). The set speed of the gearhead output shaft can also be displayed. (The displayed value will be the set speed.)

Hz

r/min

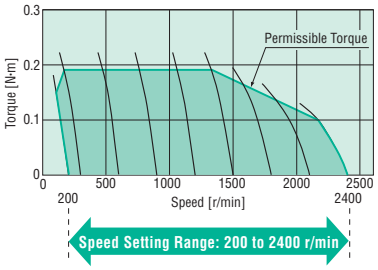
●Easy Operation

The speed can be set easily with the potentiometer on the inverter front panel.

●Maximized Motor Performance

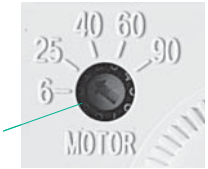
As the inverter parameters have been set for motors in advance, the motor performance can be maximized at both low and high speeds. (Speed setting range: 200 to 2400 r/min)
Continuous operation is also possible within the permissible torque.

Speed – Torque Characteristics (Example)



●Easy Setting

Easy setting by simply setting a switch in accordance with the motor output power. No troublesome adjustment is required.
FE100: For output power of 6 W to 90 W
FE200: For output power of 25 W to 200 W



Motor Output Power Select Switch (photograph: **FE100**)
Remove the front panel to access the switch.

●Multi-Axis Control

The **FE100**/**FE200** can be configured to the multi-axis control mode in which multiple motors can be controlled from a single inverter.
●For details, please contact the nearest Oriental Motor sales office.

●Main Functions

●Individual acceleration/deceleration setting
Acceleration/deceleration time can be set between 0.1 and 30 seconds (at 80 Hz).
●Remote/local input switching
Control of operation, stopping and switching rotation direction can be performed using an external input signal.
●Speed setting using external DC voltage
●Carrier frequency switching
●Sink/source input switching
●Various protective functions
●The wiring length between the motor and inverter can be extended to maximum of 20 m. (When a connection cable (accessory) is used)

●RoHS RoHS-Compliant

The **FE100**/**FE200** conforms to the RoHS Directive that prohibits the use of six chemical substances including lead and cadmium.
●Details of RoHS Directive ➜ Page G-23

■Applicable Motors

The **FE100**/**FE200** can be combined with 6 W to 200 W three-phase induction motors.

●Global Standard
World **K** Series

This is a standard motor that conforms to major safety standards and supports global voltage specifications.

Output Power: 6 W, 25 W, 40 W, 60 W, 90 W

●Watertight, Dust-Resistant Motors
FPW Series

IP67-compliant. Suitable for applications where the equipment comes in contact with water or needs to be washed with water.

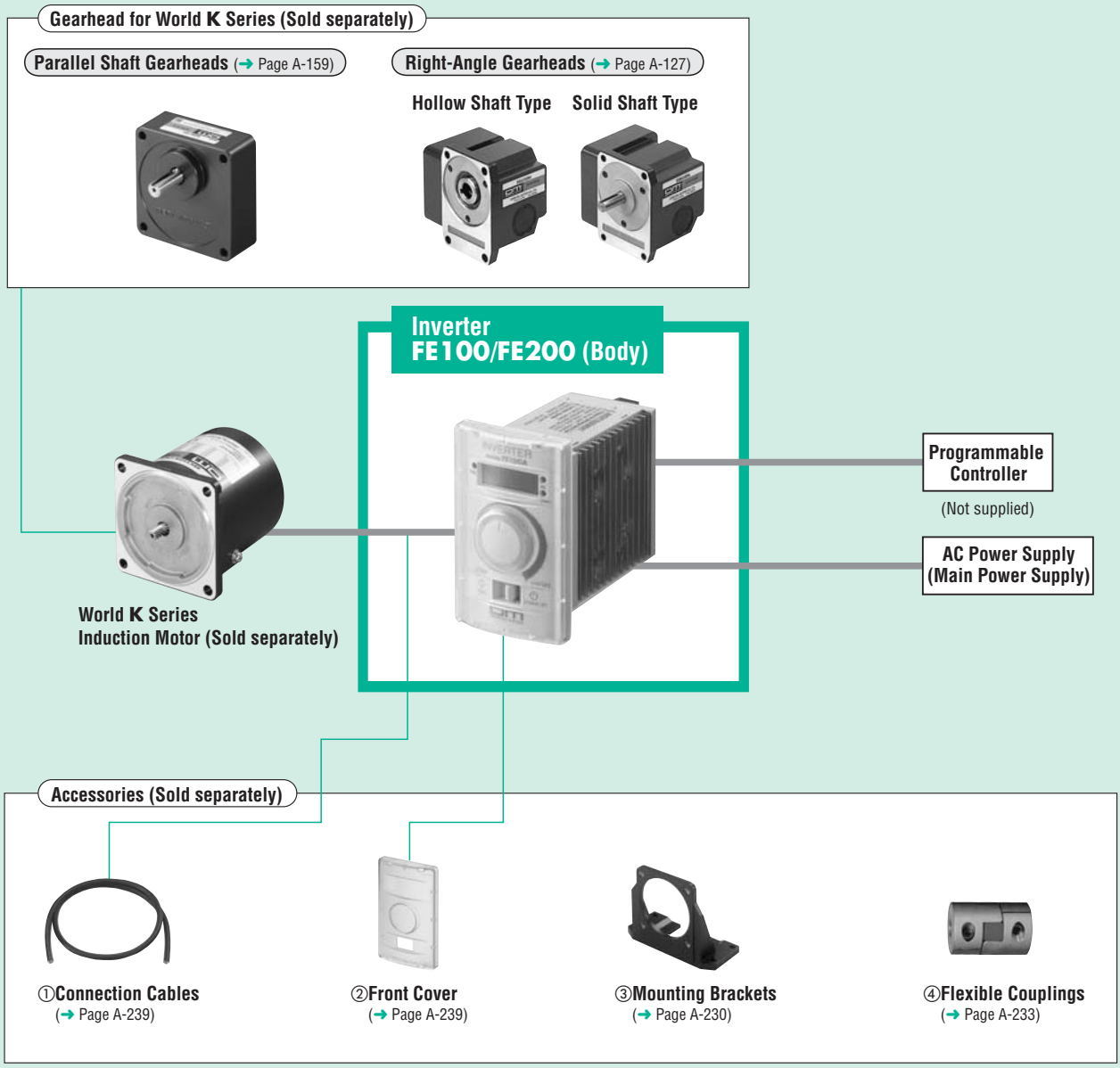
Output Power: 25 W, 40 W, 60 W, 90 W

●High-Output Power 200 W
BH Series

The **BH** Series achieves a high output of 200 W with a frame size of 104 mm.

Output Power: 200 W

System Configuration



No.	Product Name	Overview	Page
①	Connection Cables	Dedicated cable for connecting the motor and inverter (1 to 20 m).	A-239
②	Front Cover	Clear cover for the speed potentiometer on the front panel (**PAFC01**).	A-239
③	Mounting Brackets	Dedicated mounting bracket for the motor and gearhead.	A-230
④	Flexible Couplings	Clamp type coupling that connects the motor or gearhead shaft to the driven shaft.	A-233

●Example of System Configuration

(Body)	(Sold separately)			(Sold separately)			
Inverter	World K Series (Pinion Shaft)	Long Life, Low Noise Gearhead	+	Connection Cable (1 m)	Front Cover	Mounting Bracket	Flexible Coupling
FE100C	4IK25GN-SW2	4GN25S		CC01AC04	PAFC01	SOL4M5	MCL301012

●Gearheads cannot be combined with round shaft type motors.

●The system configuration shown above is an example. Other combinations are available.

Product Number Code

●Inverter

FE 100 C

① ②

①	Maximum Output Power of Applicable Motor	**100**: 100 W **200**: 200 W
②	Power Supply Voltage	**A**: Single-Phase 100-120 VAC **C**: Single-Phase 200-240 VAC **S**: Three-Phase 200-240 VAC

Product Line

●Inverter RoHS

Maximum Output Power of Applicable Motor	Power Supply Voltage	Model	Page
100 W	Single-Phase 100-120 VAC	**FE100A**	✻
	Single-Phase 200-240 VAC	**FE100C**	A-199
	Three-Phase 200-240 VAC	**FE100S**	✻
200 W	Single-Phase 100-120 VAC	**FE200A**	✻
	Single-Phase 200-240 VAC	**FE200C**	A-199
	Three-Phase 200-240 VAC	**FE200S**	✻

✻For the single-phase 100-120 VAC and three-phase 200-240 VAC models, please contact the nearest Oriental Motor sales office.

The following items are included in each product.
Inverter, Operating Manual

List of Applicable Motors RoHS

Inverter Model	Applicable Motor				Page			
	Series	Type	Motor Model		Product Line	General Specifications	Dimensions	
			Pinion Shaft Type✻	Round Shaft Type			Pinion Shaft Type	Round Shaft Type
FE100C	World **K** Series	Lead Wire	**2IK6GN-SW2**	**2IK6A-SW2**	A-26	A-25	A-27	A-28
			4IK25GN-SW2	**4IK25A-SW2**	A-34		A-36	A-36
			5IK40GN-SW2	**5IK40A-SW2**	A-38		A-40	A-40
			5IK60GE-SW2	**5IK60A-SW2**	A-42		A-44	A-44
			5IK90GE-SW2	**5IK90A-SW2**	A-46		A-48	A-48
		Terminal Box	**2IK6GN-SW2B**	**2IK6A-SW2B**	A-26		A-28	A-28
			4IK25GN-SW2T	**4IK25A-SW2T**	A-34		A-36	A-36
			5IK40GN-SW2T	**5IK40A-SW2T**	A-38		A-40	A-40
			5IK60GE-SW2T	**5IK60A-SW2T**	A-42		A-44	A-44
			5IK90GE-SW2T	**5IK90A-SW2T**	A-46		A-48	A-48
	FPW Series		**FPW425S2-**□	–	A-210	A-211	A-213	–
			FPW540S2-□				A-213	
			FPW560S2-□				A-214	
			FPW690S2-□				A-214	
FE200C	**BH** Series	Terminal Box	**BHI62ST-**□**RH**	**BHI62ST-A**	A-50	A-25	A-52	A-54
			BHI62ST-□**RA**				A-53	
			BHI62ST-□				A-53	

✻The **BH** Series is combination type, and the **FPW** Series is geared type.
●Enter the gear ratio in the box (□) within the model name.

Specifications of Motor and Inverter Combinations

ZP: Impedance protected
TP: Contains a built-in thermal protector (automatic return type).
●The set speed displayed on the product is calculated based on the following formula:
Set frequency [Hz]×30 = Set speed [r/min]
The actual speed varies depending on the load condition. Check the speed – torque characteristics on pages A-201～202.

●World **K** Series/Inverter

Motor Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ) : Round Shaft Type		Applicable Inverter	Power Supply Input			Output Power W	Permissible Torque		Speed Setting Range Hz (r/min)
			Voltage VAC	Frequency Hz	Current A		Set Frequency Hz (Set Speed r/min)	Torque mN·m	
Lead Wire Type	Terminal Box Type								
ZP **2IK6GN-SW2** (**2IK6A-SW2**)	**2IK6GN-SW2B** (**2IK6A-SW2B**)	**FE100C**	Single-Phase 200-240 ±10%	50/60 ±10%	0.42	6	6.6 (200) 15～50 (450～1500) 80 (2400)	42 49 28	6.6～80 (200～2400)
TP **4IK25GN-SW2** (**4IK25A-SW2**)	**4IK25GN-SW2T** (**4IK25A-SW2T**)	**FE100C**	Single-Phase 200-240 ±10%		0.77	25	6.6 (200) 10～50 (300～1500) 80 (2400)	150 190 100	
TP **5IK40GN-SW2** (**5IK40A-SW2**)	**5IK40GN-SW2T** (**5IK40A-SW2T**)	**FE100C**	Single-Phase 200-240 ±10%		0.96	40	6.6～50 (200～1500) 80 (2400)	300 160	
TP **5IK60GE-SW2** (**5IK60A-SW2**)	**5IK60GE-SW2T** (**5IK60A-SW2T**)	**FE100C**	Single-Phase 200-240 ±10%		1.3	60	6.6 (200) 10～50 (300～1500) 80 (2400)	310 450 260	
TP **5IK90GE-SW2** (**5IK90A-SW2**)	**5IK90GE-SW2T** (**5IK90A-SW2T**)	**FE100C**	Single-Phase 200-240 ±10%		1.6	80	6.6 (200) 10～60 (300～1800) 80 (2400)	450 500 360	

●FPW Series/Inverter

Motor Model Geared Motor	Applicable Inverter	Power Supply Input			Output Power W	Permissible Torque		Speed Setting Range Hz (r/min)
		Voltage VAC	Frequency Hz	Current A		Set Frequency Hz (Set Speed r/min)	Torque mN·m	
TP **FPW425S2-□**	**FE100C**	Single-Phase 200-240 ±10%	50/60 ±10%	0.77	25	6.6 (200) 10～50 (300～1500) 80 (2400)	150 190 100	6.6～80 (200～2400)
TP **FPW540S2-□**	**FE100C**	Single-Phase 200-240 ±10%		0.96	40	6.6～50 (200～1500) 80 (2400)	300 160	
TP **FPW560S2-□**	**FE100C**	Single-Phase 200-240 ±10%		1.3	60	6.6 (200) 10～50 (300～1500) 80 (2400)	380 450 260	
TP **FPW690S2-□**	**FE100C**	Single-Phase 200-240 ±10%		1.8	90	6.6～50 (200～1500) 80 (2400)	680 360	

● Enter the gear ratio in the box (□) within the model name.

●BH Series/Inverter

Motor Model Combination Type Model Name ( ) : Round Shaft Type	Applicable Inverter	Power Supply Input			Output Power W	Permissible Torque		Speed Setting Range Hz (r/min)
		Voltage VAC	Frequency Hz	Current A		Set Frequency Hz (Set Speed r/min)	Torque N·m	
TP **BHI62ST-□RH**, **BHI62ST-□RA** **BHI62ST-□**, (**BHI62ST-A**)	**FE200C**	Single-Phase 200-240 ±10%	50/60 ±10%	2.8	170	6.6 (200) 20～40 (600～1200) 80 (2400)	1.29 1.49 0.70	6.6～80 (200～2400)

● Enter the gear ratio in the box (□) within the model name.

■Common Specifications

●Inverter RoHS

Model			FE100C	FE200C
Maximum Output Power of Applicable Motor		W	100	200
Output Power	Rated Output Voltage	VAC	Three-Phase 200 (varies depending on the power supply voltage and load condition)	
	Rated Output Current	A	0.7	1.4
Power Supply Input	Rated Voltage	VAC	Single-Phase 200-240 ±10%	Single-Phase 200-240 ±10%
	Rated Frequency	Hz	50/60 ±5%	
Control Characteristics/ Performance	Control Method		Sinusoidal PWM method (V/f control)	
	Speed Setting Range		6.6～80 Hz (200～2400 r/min)	
	Acceleration/Deceleration Time		0.1～30 s (at 80 Hz)	
	Speed Setting Method		Speed potentiometer on the inverter front panel/DC voltage input (0～10 VDC)	
	Voltage/Frequency Characteristics		Selectable from among 5 levels according to the motor output power using rotary switches	
Function	Input Signal		Photocoupler Input: Input resistance 3.3 kΩ Driven by +15 V internal power supply RUN/STOP, FWD/REV, Alarm reset	
	Output Signal		Open-collector output: 26.4 VDC, 10 mA max. Running output, Alarm output	
	Set Speed Display		The set speed of motor*1 is displayed.	
	Remote/Local Switching RUN/STOP, FWD/REV		Operation using the RUN/STAND-BY switch or external input signals can be selected. (Factory setting: Local)	
	Carrier Frequency Switching		The carrier frequency can be switched if you want to reduce leak current from the cable connecting the inverter and motor. (Factory setting: 15 kHz)	
	Sink/Source Switching		Sink input (0 V, common) or source input (24 V, common) can be selected. (Factory setting: Source)	
	Frequency/Speed Display Switching		The speed display can be switched to the set frequency or set speed. (Factory setting: Frequency)	
	Switching to Speed Display Based on Gear Ratio*2		The set speed shown on the speed display can be changed to the speed based on the gear ratio. One of 96 levels can be set using two rotary switches. (Factory setting: Gear ratio of 1:1)	
Protective Function			If any of the following protective functions is activated, the motor will be stopped by means of base blocking action: ・Overcurrent protection: The inverter output current exceeded approximately 200% of the rated output current. ・Circuit overheat protection: The internal temperature of the inverter rose to beyond the allowable level. ・Overvoltage protection: The internal voltage of the inverter exceeded the allowable level. ・Undervoltage protection: The internal voltage of the inverter dropped to below the allowable level. ・Motor overheat protection: The built-in thermal protector of the motor was actuated, or the wiring between the motor and inverter has a missing phase*3. ・Circuit error: An error occurred in the built-in CPU of the inverter etc. ・Overload protection: The inverter output current has remained above approximately 150% of the rated output current of the inverter for approximately 1 minute. ・Setting error: The output select switch or gear ratio setting switch was set to a value outside the setting range. ・Ground fault protection: Ground fault occurred on the output side of the inverter, and ground fault current flowed.	
Wiring Distance between Inverter and Motor			20 m max. (when the connection cable **CC20AC04** is used)	
Cooling Condition			Natural ventilation	
Display	7-Segment Display		Set speed, Alarm code	
	LED Indicators		POWER, Unit of set speed display (r/min, Hz)	
Mass		kg	0.4	0.5

*1 Different from the actual speed of the motor shaft.
*2 This function is disabled in the frequency display mode.
*3 Excluding motors with output of 6 W.

General Specifications

Inverter

Item		Specifications
Insulation Resistance		100 MΩ or more when measured by a 500 VDC megger between the main circuit terminal and ground terminal (control circuit terminal) after continuous operation under normal ambient temperature and humidity.
Dielectric Strength		Sufficient to withstand 1.85 kV at 50 Hz or 60 Hz applied between the main circuit terminal and ground terminal (control circuit terminal) for 1 minute after continuous operation under normal ambient temperature and humidity.
Operating Environment	Ambient Temperature	−10～+50°C (non-freezing)
	Ambient Humidity	95% or less (non-condensing)
	Atmosphere	No corrosive gases or dust
Degree of Protection		IP10 (IP20 for inverter front panel)

Notes:

● Do not measure insulation resistance or perform the dielectric strength test while the motor and inverter are connected.

Gearmotor – Torque Table

World **K** Series/Inverter

Unit = N·m

Model Motor/Gearhead	Gear Ratio / Set Frequency Hz (Set Speed r/min)	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
2IK6GN-SW2 **2IK6GN-SW2B** / **2GN□S**	6.6 (200)	0.10	0.12	0.17	0.20	0.26	0.31	0.43	0.51	0.61	0.77	0.92	1.1	1.4	1.7	2.1	2.5	2.8	3	3	3
	15～50 (450～1500)	0.12	0.14	0.20	0.24	0.30	0.36	0.50	0.60	0.71	0.89	1.1	1.3	1.6	1.9	2.4	2.9	3	3	3	3
	80 (2400)	0.068	0.082	0.11	0.14	0.17	0.20	0.28	0.34	0.41	0.51	0.61	0.74	0.92	1.1	1.4	1.7	1.8	2.2	2.8	3
4IK25GN-SW2 **4IK25GN-SW2T** / **4GN□S**	6.6 (200)	0.36	0.44	0.61	0.73	0.91	1.1	1.5	1.8	2.2	2.7	3.3	3.9	5.0	5.9	7.4	8	8	8	8	8
	10～50 (300～1500)	0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5.0	6.3	7.5	8	8	8	8	8	8
	80 (2400)	0.24	0.29	0.41	0.49	0.61	0.73	1.0	1.2	1.5	1.8	2.2	2.6	3.3	4.0	5.0	5.9	6.6	7.9	8	8
5IK40GN-SW2 **5IK40GN-SW2T** / **5GN□S**	6.6～50 (200～1500)	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
	80 (2400)	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	9.5	10	10	10	10
5IK60GE-SW2 **5IK60GE-SW2T** / **5GE□S**	6.6 (200)	0.75	0.90	1.3	1.5	1.9	2.3	2.8	3.4	4.1	5.1	6.1	7.4	10.2	12.3	13.7	16.5	18.3	20	20	20
	10～50 (300～1500)	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	17.8	19.9	20	20	20	20	20
	80 (2400)	0.63	0.76	1.1	1.3	1.6	1.9	2.4	2.8	3.4	4.3	5.1	6.2	8.6	10.3	11.5	13.8	15.3	18.4	20	20
5IK90GE-SW2 **5IK90GE-SW2T** / **5GE□S**	6.6 (200)	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	17.8	19.9	20	20	20	20	20
	10～60 (300～1800)	1.2	1.5	2.0	2.4	3.0	3.6	4.6	5.5	6.6	8.3	9.9	11.9	16.5	19.8	20	20	20	20	20	20
	80 (2400)	0.87	1.0	1.5	1.7	2.2	2.6	3.3	3.9	4.7	5.9	7.1	8.6	11.9	14.3	15.9	19.1	20	20	20	20

FPW Series/Inverter

Unit = N·m

Model Geared Motor	Gear Ratio / Set Frequency Hz (Set Speed r/min)	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
FPW425S2-□	6.6 (200)	0.36	0.44	0.61	0.73	0.91	1.1	1.5	1.8	2.2	2.7	3.3	3.9	5.0	5.9	7.4	8	8	8	8	8
	10～50 (300～1500)	0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5.0	6.3	7.5	8	8	8	8	8	8
	80 (2400)	0.24	0.29	0.41	0.49	0.61	0.73	1.0	1.2	1.5	1.8	2.2	2.6	3.3	4.0	5.0	5.9	6.6	7.9	8	8
FPW540S2-□	6.6～50 (200～1500)	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
	80 (2400)	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	9.5	10	10	10	10
FPW560S2-□	6.6 (200)	0.92	1.1	1.5	1.8	2.3	2.8	3.5	4.2	5.0	6.3	7.5	9.0	12.5	15	15	15	15	15	15	15
	10～50 (300～1500)	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	15	15	15	15	15	15	15
	80 (2400)	0.63	0.76	1.1	1.3	1.6	1.9	2.4	2.8	3.4	4.3	5.1	6.2	8.6	10.3	11.5	13.8	15	15	15	15
FPW690S2-□	6.6～50 (200～1500)	1.7	2.0	2.8	3.3	4.1	5.0	6.2	7.4	8.9	12.4	14.9	17.9	22.4	26.9	30	30	30	30	30	30
	80 (2400)	0.87	1.0	1.5	1.7	2.2	2.6	3.3	3.9	4.7	6.6	7.9	9.5	11.9	14.3	17.8	21.4	23.8	28.5	30	30

BH Series/Inverter

Unit = N·m

Model Combination Type	Gear Ratio / Set Frequency Hz (Set Speed r/min)	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
BHI62ST-□	6.6 (200)	3.5	4.2	5.8	7.0	8.7	10.4	13.9	16.6	20.0	27.7	33.3	39.9	40	40	40	40	40	40	40	40
	20～40 (600～1200)	4.0	4.8	6.7	8.0	10.1	12.1	16.0	19.2	23.1	32.0	38.4	40	40	40	40	40	40	40	40	40
	80 (2400)	1.9	2.3	3.2	3.8	4.7	5.7	7.5	9.0	10.8	15.1	18.1	21.7	28.4	34.0	40	40	40	40	40	40
BHI62ST-□RH **BHI62ST-□RA**	6.6 (200)	–	–	4.7	5.7	7.1	8.5	11.8	14.1	17.0	23.5	28.3	33.9	40.0	43.0	47.0	51.5	54.5	60	60	60
	20～40 (600～1200)	–	–	5.4	6.5	8.2	9.8	13.6	16.3	19.6	27.2	32.6	36.0	40.0	43.0	47.0	51.5	54.5	60	60	60
	80 (2400)	–	–	2.6	3.1	3.8	4.6	6.4	7.7	9.2	12.8	15.3	18.4	25.6	30.7	38.3	46.0	51.1	60	60	60

● Enter the gear ratio in the box (□) within the model name.

● The set speed indicates the motor's synchronous speed. The actual speed varies depending on the load condition. Check the speed – torque characteristics on pages A-201～ 202.

● A colored background ( ) indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.

● World **K** Series gearheads and decimal gearheads are sold separately.

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

➜ Page A-142

Permissible Overhung Load and Permissible Thrust Load

Motor (Round Shaft Type) ➜ Page A-15
Gearhead ➜ Page A-15

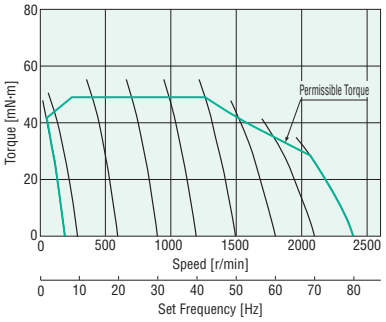
Permissible Load Inertia of Gearhead: J

➜ Page A-16

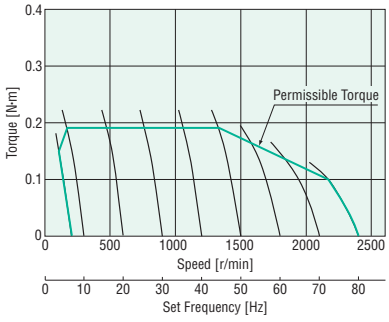
Speed – Torque Characteristics

World **K** Series

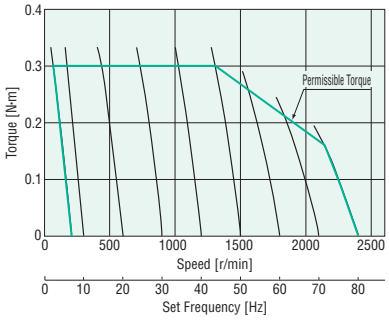
FE100C/2IK6GN(A)-SW2, 2IK6GN(A)-SW2B



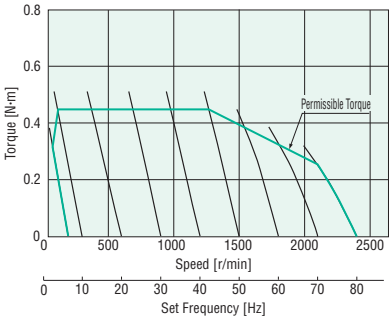
FE100C/4IK25GN(A)-SW2, 4IK25GN(A)-SW2T



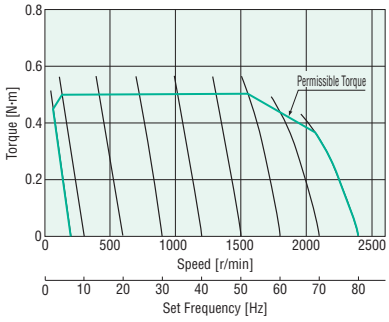
FE100C/5IK40GN(A)-SW2, 5IK40GN(A)-SW2T



FE100C/5IK60GE(A)-SW2, 5IK60GE(A)-SW2T



FE100C/5IK90GE(A)-SW2, 5IK90GE(A)-SW2T

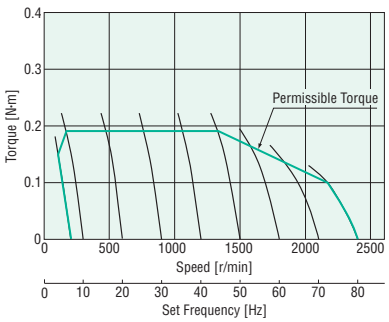


Note:

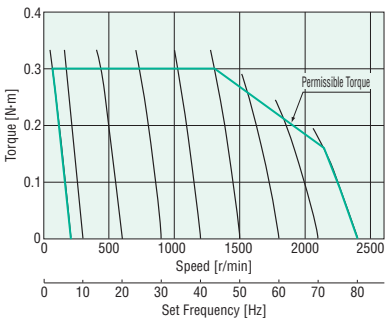
● Frequency and speed displayed on the product are set values. The actual speed varies depending on the load conditions.

●FPW Series

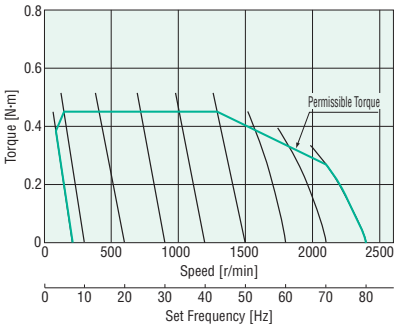
FE100C/FPW425S2-□



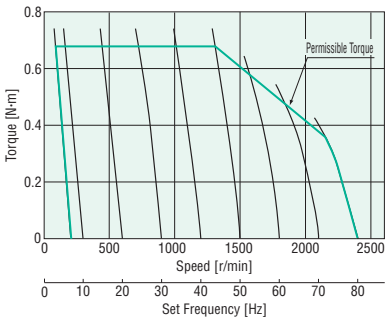
FE100C/FPW540S2-□



FE100C/FPW560S2-□

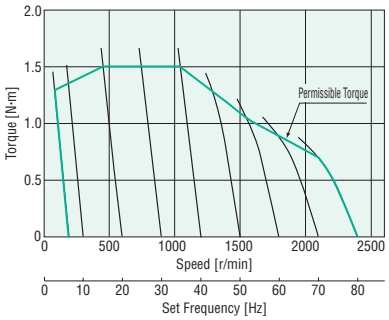


FE100C/FPW690S2-□



●BH Series

FE200C/BHI62ST-□ (RH, RA), BHI62ST-A



- The values for combination type and geared motors apply to the motor only.
- Enter the gear ratio in the box (□) within the model name.

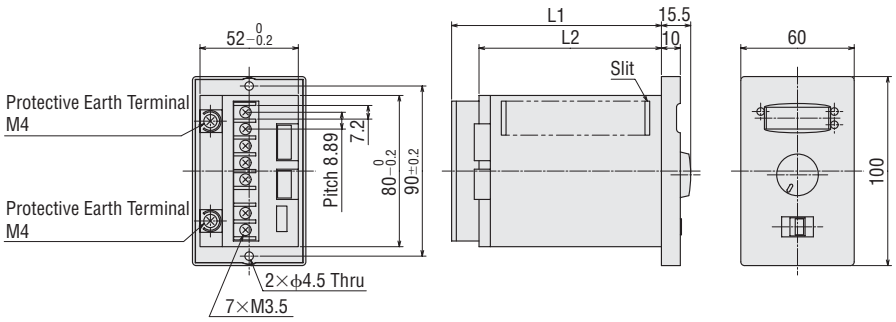
Note:

- Frequency and speed displayed on the product are set values. The actual speed varies depending on the load conditions.

■Dimensions (Unit = mm)

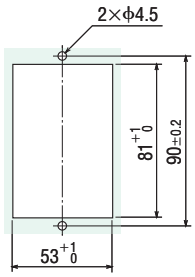
●Inverter

FE100C, FE200C



Inverter Model	L1	L2	Mass (kg)
FE100C	111	96.5	0.4
FE200C	141	126.5	0.5

◇Panel Cut-Out for Inverter

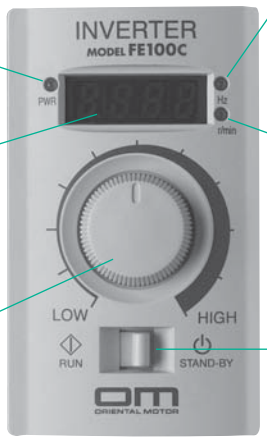


Features A-196 / System Configuration A-197 / Product Line A-198

Connection and Operation

Names and Functions of Inverter Parts

◇Inverter Front Panel



POWER LED
Lights in green when the power is supplied.

Speed Display
Displays the set frequency, set speed or alarm code if an alarm is activated.

Speed Potentiometer
Used to adjust the motor speed.

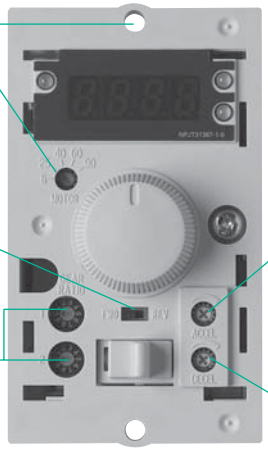
Set Frequency Display LED
Lights in orange when the frequency is displayed.

Set Speed Display LED
Lights in orange when the speed is displayed.

RUN/STAND-BY Switch
Used to run/stop the motor.

Heat Radiation Vents (Bottom)
Another vents is provided on the opposite side of the heat sink.

◇When Front Panel is Removed



Mounting Hole

Motor Output Power Select Switch
Used to set the motor output power.
FE100:
6 W/25 W/40 W/60 W/90 W
FE200:
25 W/40 W/60 W/90 W/200 W

Rotation Direction Select Switch
Used to change the rotation direction of motor.

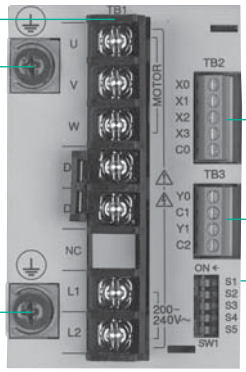
Gear Ratio Setting Switch
Set the gear ratio of the gearhead. The set speed shown on the speed display can be changed to the speed based on the gear ratio.

Acceleration Time Potentiometer
Used to set the acceleration time of motor.

Deceleration Time Potentiometer
Used to set the deceleration time of motor.

Note:
● The speed shown on the speed display is set value, not the actual speed of the motor output shaft.

◇Inverter Rear Panel



TB1:
Main Circuit Terminals

Protective Earth Terminals
(2 Locations)

TB2:
Input Signal Terminals

TB3:
Output Signal Terminals

SW1: DIP Switches

Note:
● DL1 and DL2 are connected by a short bar at shipment.

• Main Circuit Terminals TB1

Terminal Name	Name
U	Motor connection terminal
V	
W	
DL1	Reactor connection terminal
DL2	
NC	–
L1	Power supply connection terminal
L2	

• I/O Signal Terminals TB2, TB3

Terminal	Terminal Name	Name
TB2 (Input)	X0	RUN/STOP
	X1	FWD/REV
	X2	Alarm reset
	X3	External speed setting input
	C0	SG (Common)
TB3 (Output)	Y0	Running
	C1	Common
	Y1	Alarm
	C2	Common

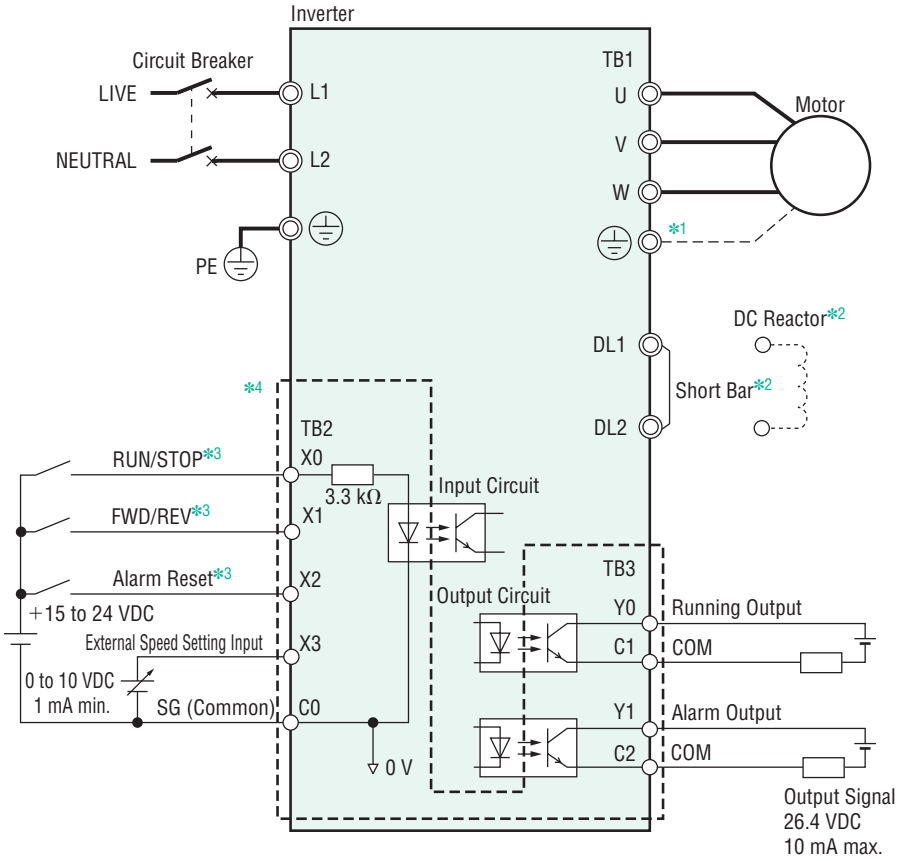
• DIP Switches SW1

No.	Function	Description
S1	Remote/Local switching (RUN/STOP)	ON : Operation by external input signals (remote) OFF : Operation using the RUN/STAND-BY switch (local)
S2	Remote/Local switching (Rotation direction)	ON : Operation by external input signals (remote) OFF : Operation using the rotation direction select switch (local)
S3	Sink/Source switching	ON : Source Input OFF : Sink Input
S4	Carrier frequency switching	ON : 10 kHz OFF : 15 kHz
S5	Set speed display switching	ON : Displayed in set speed (r/min) OFF : Displayed in set frequency (Hz)

● Factory setting: S1, S2, S4 and S5 are set to OFF, and S3 is set to ON.

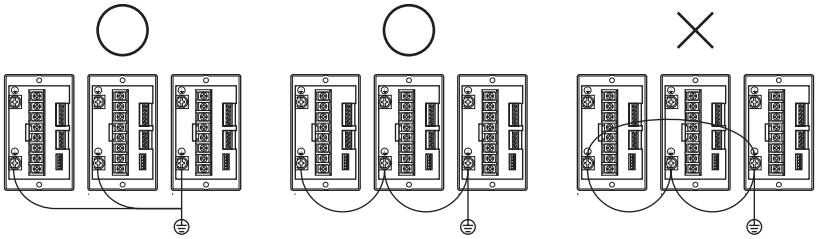
●Connection Diagram

●This connection diagram shows an example of single-phase 200-240 VAC specifications.



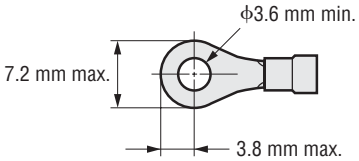
*1 If the grounding resistance exceeds 0.1 Ω, motor should be grounded directly.
*2 Remove the short bar when connecting a DC reactor.
*3 Input signals X0, X1 and X2 apply when the inverter is connected by mechanical contacts or by means of sequence connection using a source transistor (0 V, common).
*4 The I/O signal connection terminals conform to SELV circuit and are isolated from dangerous voltages by means of reinforced insulation.

●Connect the inverter and motor using a dedicated connection cable (sold separately).
The maximum wiring distance is 20 m. Connection cables ➜ Page A-239
●Keep the I/O signal cable to a length of 10 m or below, and separate it from power lines.
When setting speed externally, use a twisted-pair shielded wire, shielded wire, etc.
●Do not share the grounding cable with a welder or other power equipment.
If multiple inverters are used, pay attention not to loop the cables.

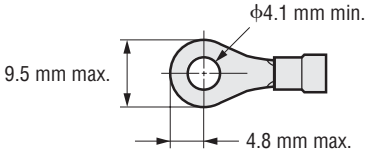


◇Applicable Crimp Terminals

• Main Circuit Connection Terminal (M3.5)
Round Terminal with Insulation



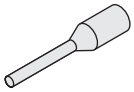
• Protective Earth Terminal (M4)
Round Terminal with Insulation



• I/O Terminals

When a crimp terminal is used for connection, use such terminals as shown below.
A crimp terminal used varies with the size of wire. Also, applicable wire size when the terminals below are used is AWG20～18.

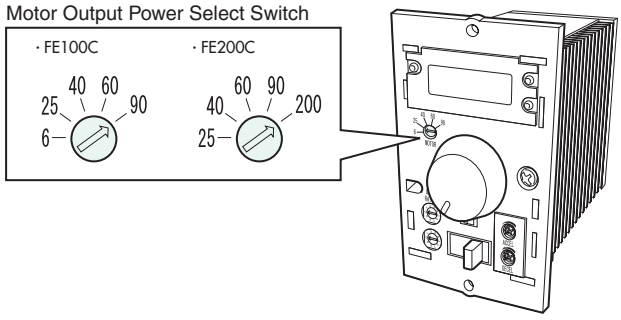
[Manufacturer: Phoenix Contact]
AI0.5-6 Applicable wire size AWG20 (0.5 mm²)
AI0.75-6 Applicable wire size AWG18 (0.75 mm²)



●Operation

◇Before Operation

Set the motor output power select switch in accordance with the motor to be combined. If the motor output power setting is incorrect, it may cause heat generation or insufficient torque.



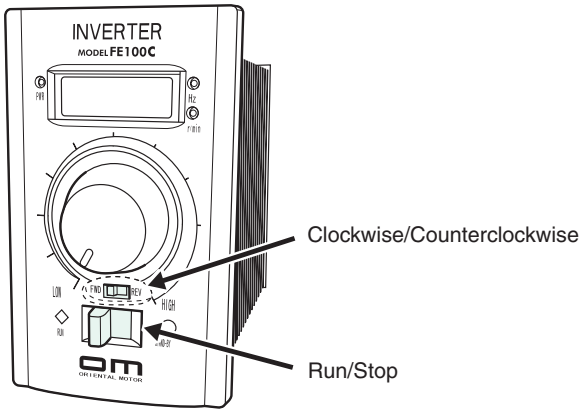
◇Operation on the Inverter Front Panel

• Run/Stop

Setting the RUN/STAND-BY switch to RUN will cause the motor to run, while setting it to STAND-BY will stop the motor.

• Rotation Direction Setting

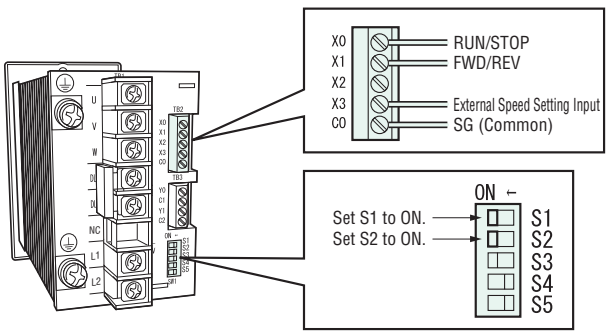
To set the rotation direction, remove the front panel and change the rotation direction to switch FWD (clockwise) or REV (counterclockwise).



◇Operation via External Input Signals

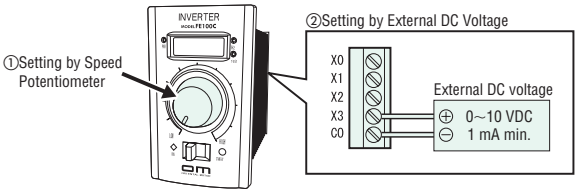
Change the DIP switch settings on the inverter rear panel.
S1 (ON) : Motor runs or stops via external input.
S2 (ON) : Rotation direction changes via external input.

Once the DIP switch settings have been changed, the motor can be run/stopped using the RUN/STOP signal and its rotation direction can be controlled using the FWD/REV signal.



◇Speed Setting

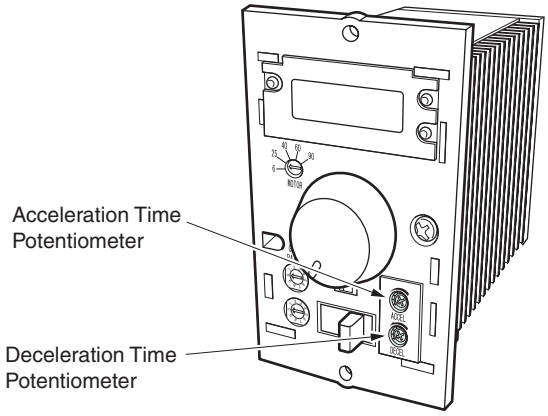
The motor speed can be set using the two methods explained below.



The motor rotates at either speed ① or ②, which is the higher setting. When the motor is to be rotated by external DC voltage, keep the speed potentiometer on the inverter at the LOW end.

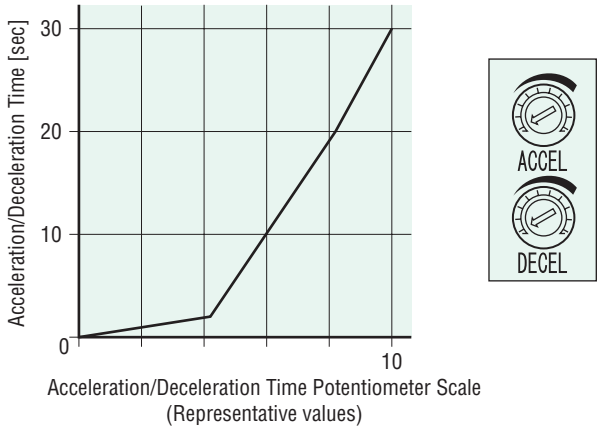
◇Acceleration/Deceleration Time Setting

When starting, the motor accelerates at the specified acceleration time. When stopped, it decelerates at the specified deceleration time. The acceleration time and deceleration time can be set in a range of 0.1 to 30 seconds.



◇Acceleration/Deceleration Time Characteristics

The graph below shows the acceleration/deceleration time characteristics (representative values) at 80 Hz (2400 r/min).



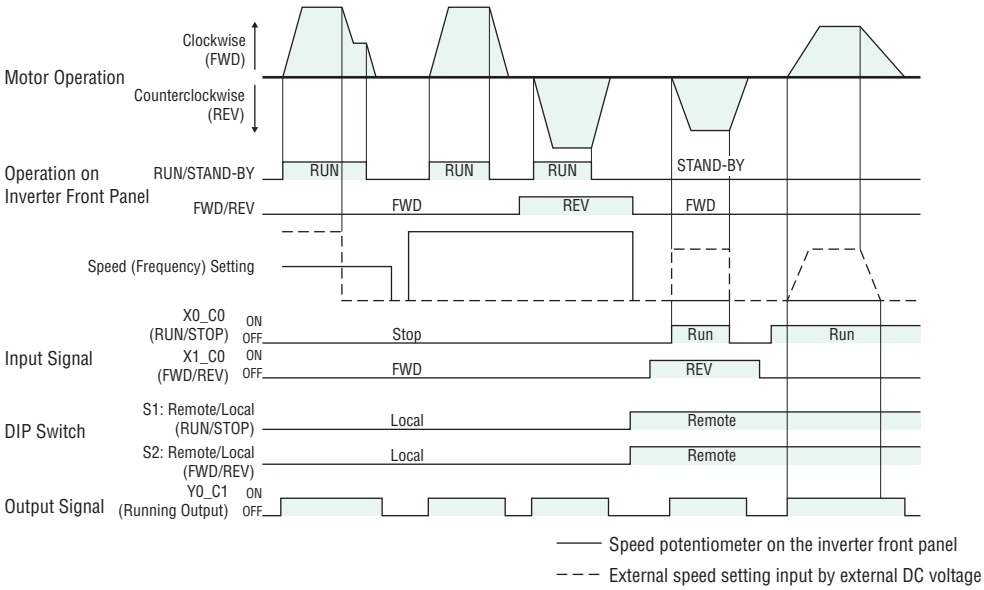
◇Display Mode Switching

While the motor is running, the set speed is displayed in frequency (Hz). You can change the display to set speed (r/min) by the DIP switch on the inverter rear panel.

DIP Switch Settings

S5 (OFF) : Displayed in set frequency (Hz)
S5 (ON) : Displayed in set speed (r/min)

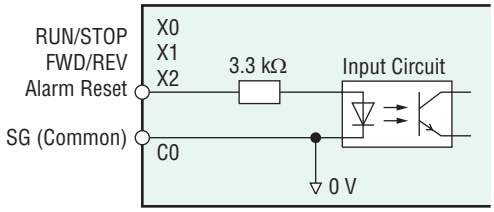
Timing Chart



- DIP switch setting is effective only when the motor is stopped.
  If any DIP switch setting is changed while the motor is running, the new setting will become effective only after the motor is stopped.
- If external DC voltage is connected to the inverter, the speed set by the X3 terminal (external speed setting input) or speed set by the speed potentiometer on the inverter front panel, whichever is higher is given priority.
- To change the rotation direction, wait for the motor to stop and then input a reversing signal. Instant change of the rotation direction in motor's operation may cause damage to the gearhead or motor due to load impact.
- The rotation direction of motor is as viewed from the motor shaft (FWD: clockwise, REV: counterclockwise). The direction of gearhead shaft rotation may differ from motor shaft rotation depending on the gear ratio of the gearhead.

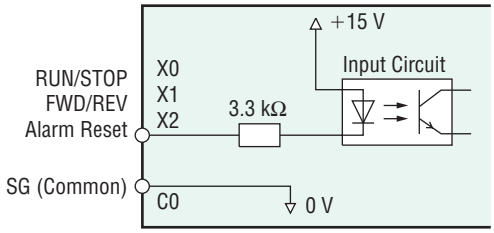
Input Signal Circuit

◇Source Logic

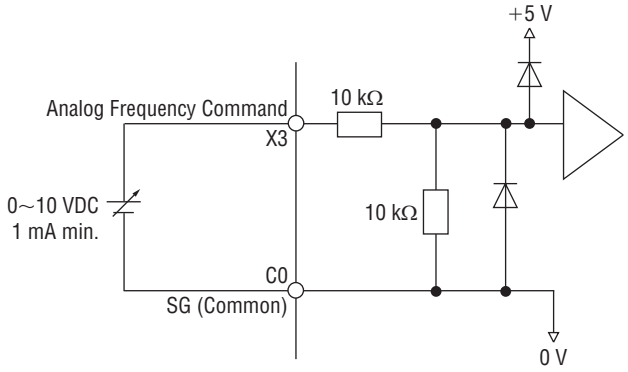


Note:
- When sequence connection is made using a source transistor, +15 to 24 VDC power supply must be connected externally.

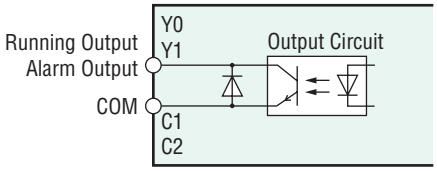
◇Sink Logic



◇Connection of External DC Voltage



Output Signal Circuit



When an External Control Device with a Built-In Clamp Diode is Used

When an external control device with a built-in clamp diode is used, if the power is being supplied to the inverter, current may flow and cause the motor to run, even if the power supply of the external control device is off. Because the power capacity differs, the motor may also run when the power supplies are turned on/off simultaneously.
Turn on the power of the external control device before the inverter. Turn off the power of the inverter before the external control device.

◇Example of Sink Logic