

Gearmotor with Brake Wiring

Types of Wiring and Selecting Points

Wiring	Selecting Point	Inverter	Hoisting Operation	Wire Saving	Braking Delay
DC Switching	Because of the shortest braking delay time, most appropriate for the application which needs sudden braking such as hoisting operation.	(Usable)	(Optimum)		
AC Switching (A)	Separate circuit can be employed for motor and brake. Therefore, most appropriate for inverter drive operation.	(Optimum)	(Usable)		
AC Switching (B)	This is the simplest way. Operation can be done only by connecting to the power source. You can save wiring.	×(Unusable)	×(Unusable)		

Note)Braking delay time indicates interval between switching off and brake on. (Not the braking time.)
 For braking delay time by wiring method, refer to Table-19 on page E37.
 In case braking time is needed, refer to the calculation method on page E10.

Wiring Method [Standard Voltage]

No.	Motor Capacity Designation 3-Phase [T15 ~ T90]	Motor Capacity Designation 1-Phase [S06 ~ S90]
1.DC Switching		
2.AC Switching(A)	<p>Blue for Rectifie Blue should be short circuited.</p>	<p>Blue for Rectifie Blue should be short circuited.</p>
3.AC Switching(B)	<p>Blue for Rectifie Blue should be short circuited.</p>	<p>Blue for Rectifie Blue should be short circuited.</p>

S: Rotation Changeover Switch C: Capacitor MS: Electro-Magnetic Switch -N : Surge Suppressor (option)

- Note** 1) For the application of vertical motion such as lifting, DC Switching wiring should be employed.
 2) It is recommended to insert surge suppressor between contact points in DC Switching circuit. (Varistor Voltage 423 ~ 517V)
 3) In case of single-phase 100V, the voltage applied to the input side of the rectifier A200-D90 (A100-D45) will be AC100V and the output side, DC45V.
 4) The electro-magnetic switch with the rated current of over 6A(AC200V) is recommended for the relay for brake circuit. In case DC Switching wiring is employed, in order to shield the inductive load (DC coil), DC110V, DC13 class is recommended. Also, in case of employing a noncontact relay, it is recommended to use the rated voltage of AC240V equivalent (half-wave rectification switching available).
 5) Since the rectifier contains diodes, improper wiring may cause fatal short-circuiting. Therefore, special care should be given to the wiring.
 6) For wirings and cautions in case of inverter drive, refer to page E76.

Wiring Method [High Voltage]

No.	Motor Capacity Designation 3-Phase [T15W ~ T90W]	Motor Capacity Designation 1-Phase [S10W ~ S90W]
1.DC Switching		
2.AC Switching(A)		
3.AC Switching(B)		

S: Rotation Changeover Switch C: Capacitor MS: Electro-Magnetic Switch -N: Surge Suppressor (option)

- Note**
- 1) For the application of vertical motion such as lifting, DC Switching wiring should be employed.
 - 2) It is recommended to insert surge suppressor between contact points in DC Switching circuit. (Varistor Voltage 423 ~ 517V)
 - 3) The electro-magnetic switch with the rated current of over 6A(AC200V) is recommended for the relay for brake circuit. In case DC Switching wiring is employed, in order to shield the inductive load (DC coil), DC110V, DC13 class is recommended. Also, in case of employing a noncontact relay, it is recommended to use the rated voltage of AC240V equivalent (half-wave rectification switching available).
 - 4) Since the rectifier contains diodes, improper wiring may cause fatal short-circuiting. Therefore, special care should be given to the wiring.
 - 5) AS for the 3-phase/double voltage model or over 230V model, be sure to connect 200V leads(red, 0.75 ~ 2.2kW for B terminal), which are extended out from the motor for the brake supply, to the input of rectifier. In case of the operation by inverter drive, the 200V terminal extended from the motor is not feasible. For details, contact us. For cautions in case of inverter drive, refer to page E76.

Braking Delay Time : t_a

Braking delay time indicates interval (second) between switching off and brake on.
(Not the braking time.)

Table-19

No.	Braking Delay Time: t_a (second)
1.DC Switching	0.005 ~ 0.015
2.AC Switching(A)	0.03 ~ 0.10
3.AC Switching(B)	0.1 ~ 0.2

Parallel Shaft Performance Table/ Dimension

Gearmotor with Brake

Water-resistant Gearmotor with Brake

Speed Control Gearmotor

Gearmotor with Clutch /Brake

GT-Type Gearmotor with Brake

Right Angle Shaft Performance Table/ Dimension

Gearmotor with Brake

With Water-resistant Brake Motor

Speed Control Gearmotor

Concentric Hollow Shaft Performance Table/ Dimension

Gearmotor with Brake

With Water-resistant Brake Motor

Speed Control Gearmotor

Parallel Shaft GTR-L Series Performance Table/ Dimension

Reversible Gearmotor with Brake

Speed Control Gearmotor with Brake

Technical Information

Standard Motors

Cautions for Safety

Option

Water-Resistant Gearmotor with Brake Wiring

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AC Switching (A)	Separate circuit can be employed for motor and brake. Therefore, most appropriate for inverter drive operation.	(Optimum)	(Usable)		
AC Switching (B)	This is the simplest way. Operation can be done only by connecting to the power source. You can save wiring.	×(Unusable)	×(Unusable)		

Note)Braking delay time indicates interval between switching off and brake on. (Not the braking time.)

For braking delay time by wiring method, refer to Table-15 on page E47/Table-21.

In case braking time is needed, refer to the calculation method on page E10.

Wiring Method [Standard Voltage]

No.	Motor Capacity Designation 3-Phase[T15 ~ T90]	Motor Capacity Designation 1-Phase[S15 ~ S60]
1.DC Switching		
2.AC Switching(A)	<p>Blue for Rectifie Blue should be short circuited.</p>	<p>Blue for Rectifie Blue should be short circuited.</p>
3.AC Switching(B)	<p>Blue for Rectifie Blue should be short circuited.</p>	<p>Blue for Rectifie Blue should be short circuited.</p>

S: Rotation Changeover Switch C: Capacitor MS: Electro-Magnetic Switch -N: Surge Suppressor (option)

Note 1) For the application of vertical motion such as lifting, DC Switching wiring should be employed.

2) It is recommended to insert surge suppressor between contact points in DC Switching circuit. (Varistor Voltage 423 ~ 517V)

3) In case of single-phase 100V, the voltage applied to the input side of the rectifier A200-D90 (A100-D45) will be AC100V and the output side, DC45V.

4) The electro-magnetic switch with the rated current of over 6A(AC200V) is recommended for the relay for brake circuit. In case DC Switching wiring is employed, in order to shield the inductive load (DC coil), DC110V, DC13 class is recommended. Also, in case of employing a noncontact relay, it is recommended to use the rated voltage of AC240V equivalent (half-wave rectification switching available).

5) Since the rectifier contains diodes, improper wiring may cause fatal short-circuiting. Therefore, special care should be given to the wiring.

6) For wirings and cautions in case of inverter drive, refer to page E76.

Braking Delay Time : t_a

Braking delay time indicates interval (second) between switching off and brake on.

(Not the braking time.)

Table-21

No.	Braking Delay Time: t_a (second)
1.DC Switching	0.01 ~ 0.02
2.AC Switching(A)	0.05 ~ 0.15
3.AC Switching(B)	0.1 ~ 0.2

Parallel Shaft Performance Table/ Dimension

Gearmotor with Brake

Water-resistant Gearmotor with Brake

Speed Control Gearmotor

Gearmotor with Clutch /Brake

GT-Type Gearmotor with Brake

Right Angle Shaft Performance Table/ Dimension

Gearmotor with Brake

With Water-resistant Brake Motor

Speed Control Gearmotor

Concentric Hollow Shaft Concentric Solid Shaft Performance Table/ Dimension

Gearmotor with Brake

With Water-resistant Brake Motor

Speed Control Gearmotor

Parallel Shaft GTR-L Series Performance Table/ Dimension

Reversible Gearmotor with Brake

Speed Control Gearmotor with Brake

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