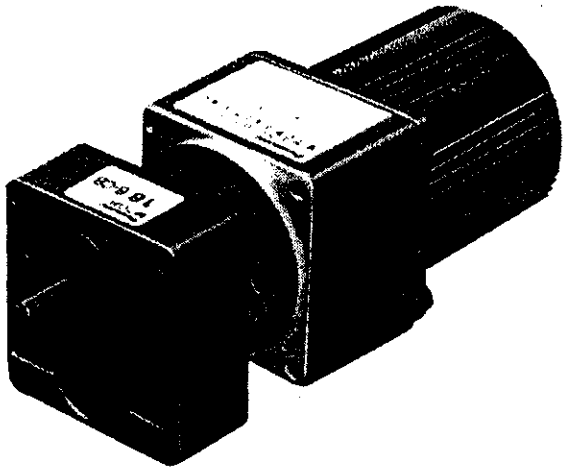
Panasonic

Small Geared Motor 〈 G Series 〉

C & B Motor

Operation Manual



- Thank you for buying and using Variable Speed Unit type of Panasonic Small Geared Motor, G series.
- This operation manual describes the product and its handling and caution for safety.
- Handling and operation of this product is simple, however, mishandling may result in an unexpected accident, or shorten the life of the product, or deteriorate the performance of the product. Read this manual carefully and follow the instruction for proper application.
- Keep this manual at convenient place for further reference.

Unit

In this manual, both SI and conventinal unit is used.
Some actual product shows only conventional unit.

Caution for safety

Read and follow this operation manual before installation, running, maintenance, inspection of the product. Knowledge of the product, safety information have to be fully understood.
In this manual, caution items are classified into 「DANGER」 and 「CAUTION」.

⚠ 危険 : Causes the risk of dangerous situation which might result in a death, or serious injury through a mishandling of the product.

⚠ 注意 : Causes the risk of dangerous situation which might result in a medium injury or property damage through a mishandling of the product.

Even a **⚠ 注意** item might result in more serious situation, depending on situation. In any case, follow the instructions in this manual without fail.

⚠ 危険

- Ground the motor with grounding terminal without fail.
  Risk of electric shock.
- Don't pull, nor pinch the lead wires or power cord.
  Risk of electric shock.
- Turn off the power at installation, transportation, wiring and inspection.
  Risk of electric shock.
- Don't touch a rotating portion of the motor.
  Risk of injury.
- Turn off the power at power shut down, or when a thermal protector is activated.
  Risk of injury due to a sudden restart.

⚠注意

- Don't use a damaged motor.
  Risk of electric shock and fire.
- Don't insert a finger or other material into a opening of the product.
  Risk of electric shock and fire.
- Check if the product is what was ordered.
  Risk of injury and fire.
- In case of a motor which no thermal protector is equipped, install an overcurrent protector, leakage current breaker and thermal protector.
- Even in case of a motor with a thermal protector, install an overcurrent protector, leakage current breaker for further safety. thermal protector.
- Don't place a combustible material nearby the motor.
  Risk of burn and fire.
- Don't place a material which blocks a ventilation of the motor.
  Risk of burn and fire.
- Don't touch the motor at running, or shortly after the motor stops.
  Risk of burn due to high temperature at the motor surface.
- Don't step on the motor.
  Risk of injury.
- Make a wiring securely per the wiring diagram.
  Risk of fire due to the motor burn.
- Turn off the power to stop the motor whenever malfunction is identified.
  Risk of electric shock, injury and fire.
- Don't modify the product. This exempts from warranty.
  Risk of electric shock and fire.
- When any repair is required, contact to a dealer.
- If this product is to be scrapped, treat this as an industrial waste.

■ Table of contents

■ After opening a package

Check the followings:

1. Is the product what you ordered ?
   Correct model No. ? Correct output ? Correct voltage ?
2. Is a capacitor attached for single phase motor(except UL type) ?
   Gear head is option.
3. Is the product damaged during transportation ?
4. If any inconvenience is found, contact to a dealer.

■ Model identification

M9 CB 1 A 40 G V 4 L

- M9 — Size: M6:60mm sq. / M7:70mm sq. / M8:80mm sq. / M9:90mm sq.
- CB — Motor type: 1: Induction / M: 3-phase
- 1 — Model type: A:A-type(40W or smaller) / C:C-type(60W or larger)
- A — ・・・
- 40 — Output: 6: 6W / 15:15W / 25:25W / 40:40W / 60:60W / 90:90W
- G — Shaft shape: G:Geared
- V — Function: T:Terminal boc / K:Seal connector / V:Variable speed
- 4 — Poles
- L — Rated voltage: L:Single 100V / Y:Single 200V / 3-phase 200/220V / DU:Single 100/115/120V (UL recognized) / GU:3-phase 220/240V (UL recognized)

Applicable gear head(Option)

M9 G B 18 B — CB

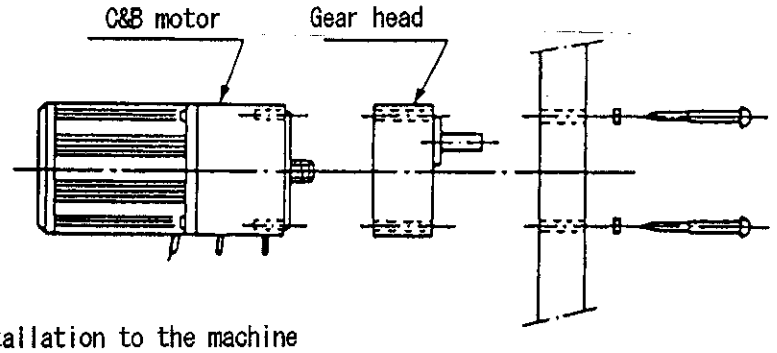
- M9 — M6:60mm sq. / M7:70mm sq. / M8:80mm sq. / M9:90mm sq.
- G
- B — B:B-type (applicable to A-type motor) / E:E-type (applicable to C-type motor)
- 18 — reduction ratio
- B — B:Ball bearing
- CB

Select the gear head which matches to the type and size of the motor

■ Installation

Use the exclusive C&B gear head for C&B motor.
Don't hurt the output shaft pinion of the C&B motor while assembling the head and motor.

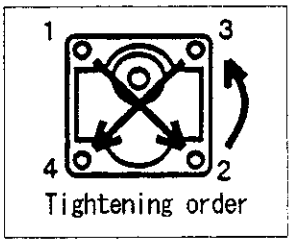
1. Assembly of the C&B motor and B-type gear head



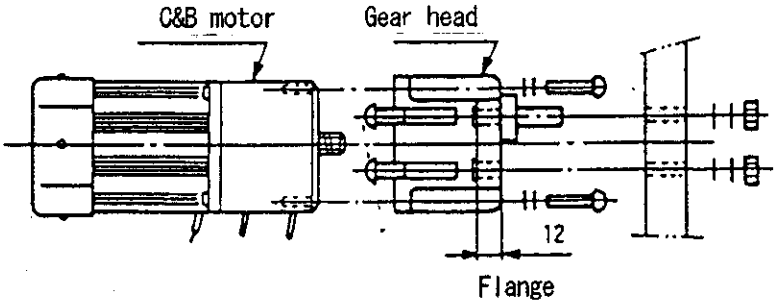
● Installation to the machine
Use the attached 4 screws for installation. No nut is required.
Thickness of applicable mounting plate(max.)

M6GB	M7GB	M8GB	M9GB	
8	15	15	16	(mm)

Make the min. thickness(3mm recommended) so that the motor may not oscillate.



2. Assembly of the C&B motor and E-type gear head



● Gear head assembly
Use the attached 4 screws. No nut is required.

● Installation to the machine
Prepare and use 4 M-8 screws.
Decide the screw length considering the motor mounting flange of 12mm.

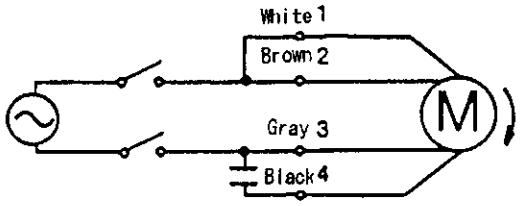
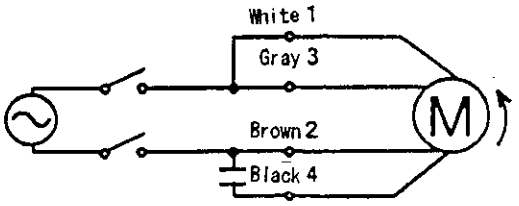
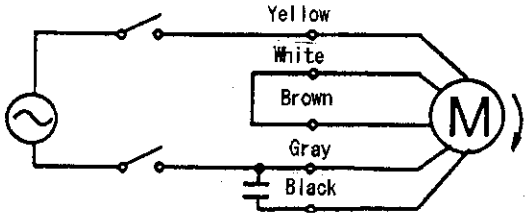
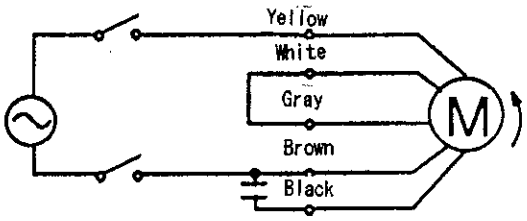
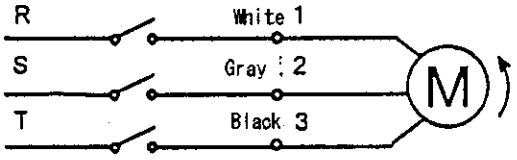
3. Others

1. Don't use the product where the product is subjected to water, oil or direct sun light.
2. Avoid using the product where heavy vibration or shock, dust, inflammable gas, or erosive gas is expected.
3. Don't take off the name plate.
4. Install an overcurrent protector, leakage current breaker and thermal protector to avoid the risk of smoke and fire which is expected to occur at some error such as motor stall.
5. Don't use the product exceeding its rating or beyond the specifications, described in the name plate, operation manual or catalogue.
6. In case of the variable speed motor, use it within the specified speed range.
7. Don't pull or pinch the lead wires or power cables.
8. Turn off the power at installation, transportation, wiring and inspection.
9. Don't touch the rotating portion. Don't touch the motor surface at running or for a while after the motor stops.
10. Don't place a combustible material or any object which may prevent ventilation nearby the motor.

■ Wiring

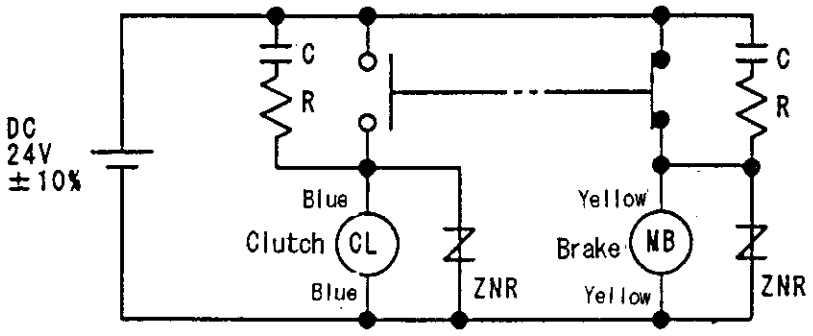
1. Motor wiring

- Make a motor wiring per the table below:
- Rotating direction is viewed from the motor shaft. Note there is some cases that the rotating direction of the output shaft differs from that of the motor.
- If some error occurs regarding "No run", "Reverse run", or "Small torque", check the wiring again.

	CW(Clockwise)	CCW(Counter clockwise)
Induction motor		
Induction motor (UL recognized		
3-phase motor (including UL recognized)	Change either 2 wires of the right fig. to make CW run.	

- Above colors shows that of the lead wires and the number shows the terminal number of the motor with terminal box.
- Regarding to the variable speed motors, refer to the operation manual of the speed controller.
- As to UL recognized motors, impedance protection is adopted to 60mm sq. motor, and thermal protector is equipped in other motors.
- Ground at the grounding terminal of the motor with terminal box.

2. Clutch and Brake wiring



- Apply 24VDC to the blue wire for clutch, and yellow wire for brake. Don' apply voltage to both of clutch and brake at the same time.
- Prepare a separate power supply(DC24C, 0.5A or more) for clutch and brake from that for the motor.
- Lead wires of clutch and brake are non-polarity.
- Use the following component for ZNR(serge absorbor):
  ERZV10D101(by Matsushita) or equivalent
- Make a contact protection by using C and R between contacts.
  C : 0.1μF 250V polyester film capacitor
  R : 47Ω 1/2W

■ Maintenance

Periodical maintenance stated below, is important to prevent an unexpected malfunction, which might be caused by environmental affect(temperature, humidity, vibration, etc.), or aging effect of the component and its life end.

1. Does the motor run smoothly ?
2. Does the motor generate abnormal noise during running ?
3. Does the motor generate abnormal heat ?

Note) · Don't step on the motor.
· Turn off the power whenever error occurs.
· Don't modify the product.
· When the motor has to be scrapped, treat it as an industrial waste.
· Don't use the damaged motor.

■ Troubleshooting

Symptom	Where to check	Counter measure
· The motor doesn't run.	· Is the wiring correct ?	· Correct the wiring.
	· Is the correct voltage applied ?	· Apply the correct voltage.
	· Is the correct capacitor connected ?	· Connect the correct capacitor.
	· Is the motor load proper ?	· Reduce the load, or use larger output motor.
	· Does the current run through the clutch(blue) ?	· Enter the current through the clutch.
	· Is the power voltage to the clutch and brake correct ?	· Use the power supply of DC24V±10%, 5A or more.
· The motor runs at reversed direction.	· Is the wiring correct ?	· Make a wiring per the wiring diagram.
	· Rotating direction of the output shaft differs per gear reduction ratio.	· Check the rotating direction, and make a wiring per the rotating direction of the output shaft.
	· Is the capacitor connected per the wiring diagram >	· Make a wiring per the wiring diagram.
	· Is the direction viewed from the correct direction ?	· Direction of the wiring diagram is viewed from the motor output shaft.
· The motor generates abnormal heat.	· Is the correct voltage applied ? (Is 200V applied to 100V motor ?)	· Apply the correct voltage.
	· Is the correct capacitor used ?	· Use the designated capacitor.
	· Motor surface temperature depends on environmental temperature, the motor load and the start/stop frequency. If the surface temperature exceeds 90℃, it may damage the motor. (Note 1)	· Use the larger output motor, or reduce the motor load when the surface temperature exceeds 90℃.

Note 1) Use the thermometer, thermocouple or thermotape for measurement of the surface temperature.

■ Working condition

Working voltage	±10%(of rated voltage)
Power frequency	50/60Hz
Power supply for clutch/brake	DC24V ±10%, 0.5A or more
Working voltage	−10~40℃
Working humidity	85%RH or lower(free from dew)

■ Specifications and Dimensions

See the catalogue(contact to a dealer).

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