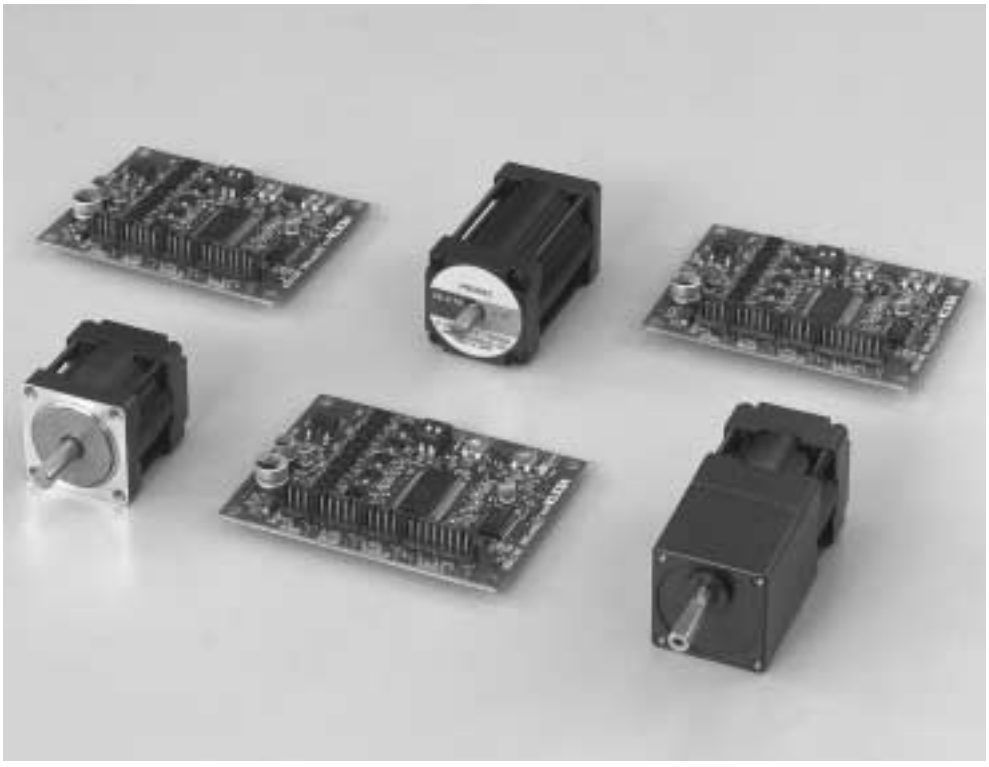


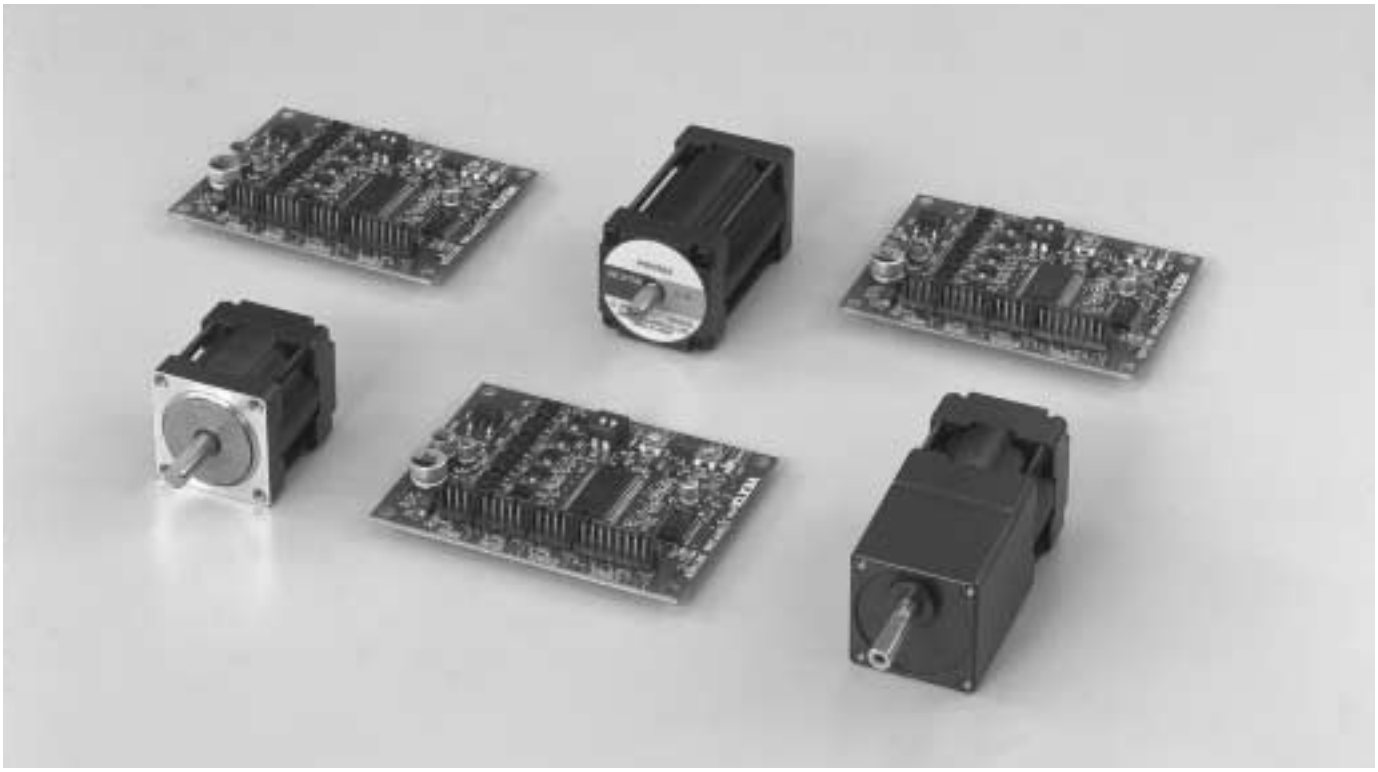
COMPACT & LIGHTWEIGHT
STEPPING MOTOR AND DRIVER PACKAGE

PMC Series

COMPACT & LIGHTWEIGHT
STEPPING MOTOR AND DRIVER PACKAGE

PLC DIRECT | GEARED | PACK-AGE | DC INPUT

PMC *Series*



1. Subminiature Size

Motors are an achievement in miniaturization and lightweight: 1.10 in. (28mm) sq., 0.22lb. (0.1kg) (**PMC33□3**) and 0.38lb. (0.17kg) (**PMC35□3**) in weight.

2. High Output

Design advancements allow for high-torque in a small package. In combination with the 0.35A/phase output driver, its high-torque capability extends well into the high-speed range.

3. Superior Features

Features include enabling/disabling of the "Automatic Current Cutback" function via signal input and the "Excitation Timing" output, which is useful in setting the mechanical origin of your system.

4. Connectors

Independent connectors are furnished for the driver input/output signals and motor output line. Use of an automatic swaging tool facilitates the connection.

5. Highly Reliable Photocoupler Input

Signal input/output sections use photocouplers that provide protection from external noise. Requirement for a single DC24V/36V power supply simplifies power supply design and reduces wiring work.

6. Selectable: Full Step/Half Step

Half step drive is selectable through a signal for driving at higher resolution with lower vibration.

7. Selectable: 1-Pulse/2-Pulse

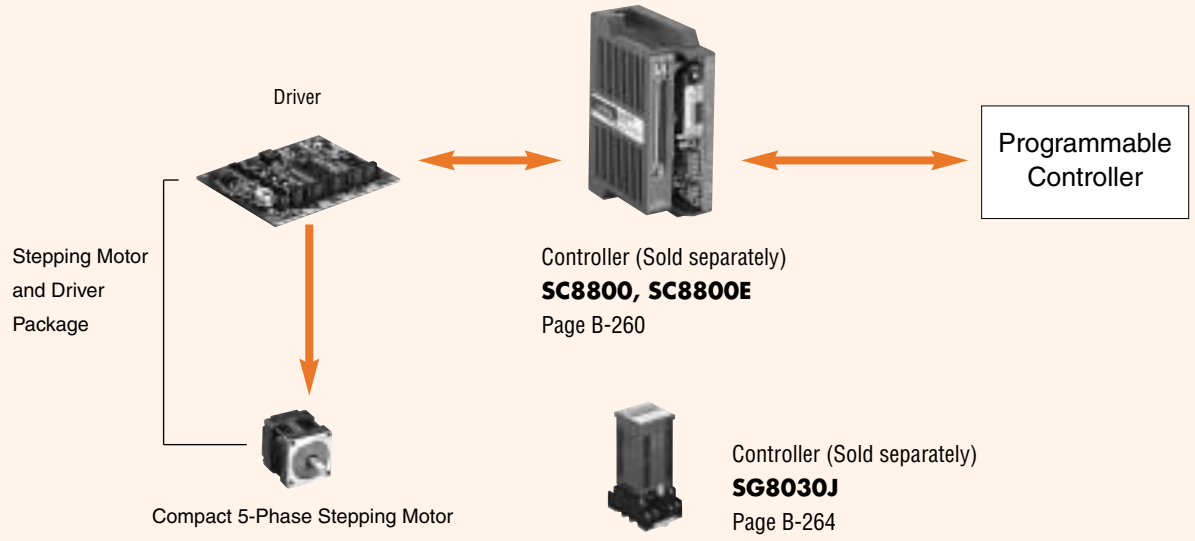
A switch on the driver selects one-pulse or two-pulse input.

8. Subminiature Gearmotors

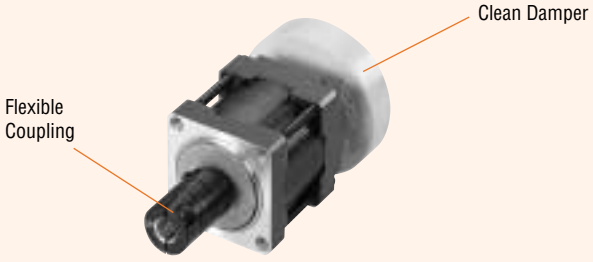
Gearmotors are also features a mounting frame just 1.10 in. (28mm) sq. Five gear ratios are available: 3.6:1, 7.2:1, 10:1, 20:1 and 30:1. The lowness of the ratios means that speed can be reduced without slowing the motor too much, thus enabling more precise resolution and smoother rotationat low speed.

■ PMC SERIES SYSTEM CONFIGURATION

A compact stepping motor and driver are combined to provide high-precision positioning with open loop control.



■ ACCESSORIES (Sold separately)



● Clean Dampers
Page B-300

● Flexible Couplings
Page B-301

MC Motor Couplings

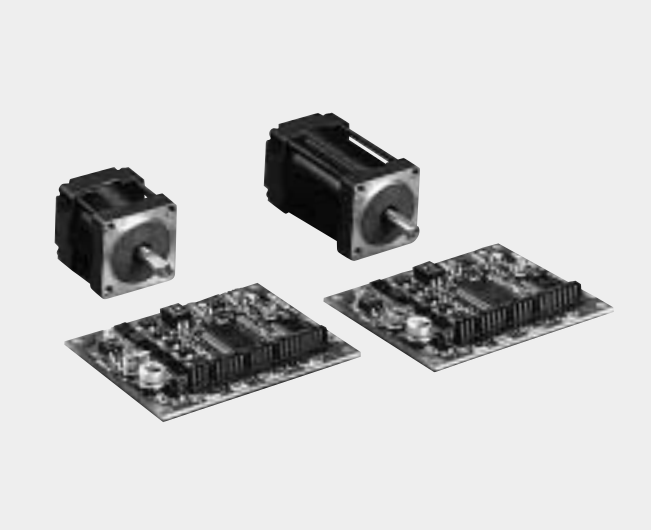
● Flexible Couplings
Page B-303

MCL Gearmotor Couplings

PMC Series Standard Type

Page **B-199**

Package Model	Maximum Holding Torque oz-in	N·m
PMC33A3 (Single Shaft)	4.58	0.033
PMC33B3 (Double Shaft)	4.58	0.033
PMC35A3 (Single Shaft)	8.33	0.06
PMC35B3 (Double Shaft)	8.33	0.06

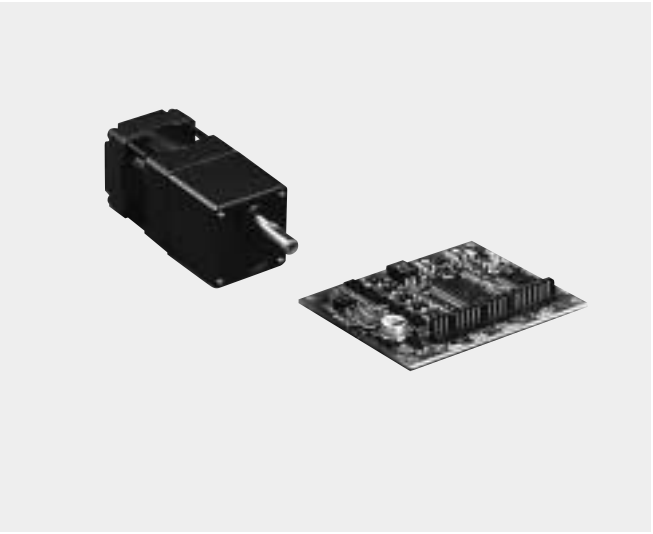


PMC Series Geared Type

Page **B-202**

Gear frame size is also 1.1 inch (28mm) square.
Five gear ratio are available: 3.6:1, 7.2:1, 10:1, 20:1 and 30:1.
The low gear ratio means that output speed can be reduced without slowing the motor, thus enabling more precise resolution and smoother rotation at low speed.

Package Model	Permissible Torque oz-in	N·m
PMC33A1-MG3.6 (Single Shaft)	11.1	0.08
PMC33B1-MG3.6 (Double Shaft)	11.1	0.08
PMC33A1-MG7.2 (Single Shaft)	22.2	0.16
PMC33B1-MG7.2 (Double Shaft)	22.2	0.16
PMC33A1-MG10 (Single Shaft)	29.1	0.21
PMC33B1-MG10 (Double Shaft)	29.1	0.21
PMC33A1-MG20 (Single Shaft)	47.2	0.34
PMC33B1-MG20 (Double Shaft)	47.2	0.34
PMC33A1-MG30 (Single Shaft)	70.8	0.51
PMC33B1-MG30 (Double Shaft)	70.8	0.51



■ PRODUCT NUMBER CODE

PMC 3 3 A 3

- 3 — Reference Number
- A — A : Single Shaft / B : Double Shaft
- 3 — Motor Case Length
- 3 — Motor Frame Size 1.1 in. (28mm) sq.
- PMC — **PMC** Series

■ SPECIFICATIONS: STANDARD TYPE

Package Model		Single Shaft	PMC33A3	PMC35A3
		Double Shaft	PMC33B3	PMC35B3
Maximum Holding Torque		oz-in N·m	4.58 0.033	8.33 0.06
Rotor Inertia		oz-in kg·m^2	0.05 9×10^{-7}	0.099 18×10^{-7}
Rated Current		A/phase	0.35	
Basic Step Angle			0.72°	
Insulation Class			Class B [(266°F (130°C)]	
Power Source			DC 24V±10% 0.7A or DC 36V±10% 0.7A	
Output Current		A/phase	0.35	
Excitation Mode			● Full Step (4 phase excitation): 0.72°/step ● Half Step (4-5 phase excitation): 0.36°/step	
Input Signals	Input Signal Circuit		Photocoupler input, Input resistance 220Ω, Input current 20mA maximum Signal voltage Photocoupler ON: +4~+5V, Photocoupler OFF: 0~+0.5V	
Input Signals	● Pulse Signal (CW Pulse Signal)		Step command pulse signal (CW step command signal at 2-pulse input mode) Pulse width: 5μs minimum, Pulse rise/fall: 2μs maximum Motor moves when the photocoupler state changes from ON to OFF.	
Input Signals	● Rotational Direction Signal (CCW Pulse Signal)		Rotation direction signal Photocoupler ON: CW, Photocoupler OFF: CCW (CCW step command signal at 2-pulse input mode Pulse width: 5μs minimum, Pulse rise/fall: 2μs maximum Motor moves when the photocoupler state changes from ON to OFF.)	
Input Signals	● Step Angle Signal		Full Step (0.72˚) at "photocoupler OFF" Half Step (0.36˚) at "photocoupler ON"	
Input Signals	● All Windings Off Signal		When in the "photocoupler ON" state, the current to the motor is cut off and the motor shaft can be rotated manually. When in the "photocoupler OFF" state, the current level set by the RUN switch is supplied to the motor.	
Input Signals	● Automatic Current Cutback Release Signal		When in the "photocoupler ON" state, the "Automatic Current Cutback" function at motor standstill is disabled. When in the "photocoupler OFF" state, the "Automatic Current Cutback" function at motor standstill is activated. (approximately 100ms after motor stops)	
Output Signals	Output Signal Circuit		Photocoupler, Open-Collector Output External use condition: 24V DC maximum, 10mA maximum	
Output Signals	● Excitation Timing Signal		Signal is output every time the excitation sequence returns to the initial "0". (Photocoupler : ON) Full step: Signal is output every 10 pulses, Half step: Signal is output every 20 pulses	
Functions			Automatic current cutback, All windings off, Pulse input mode switch	
Driver Cooling Method			Natural Ventilation	
Weight (Mass)		Motor lb. (kg)	0.22 (0.1)	0.38 (0.17)
		Driver lb. (kg)	0.06 (0.025)	
Insulation Resistance			100MΩ minimum under normal temperature and humidity, when measured by a DC500V megger between the motor coils and the motor casing.	
Dielectric Strength			Sufficient to withstand 0.5kV, 60Hz applied between the motor coils and casing for one minute, under normal temperature and humidity.	
Ambient Temperature Range		Motor	+14°F~+122°F (−10°C~+50°C)	
		Driver	+32°F~+104°F (0°C~+40°C)	

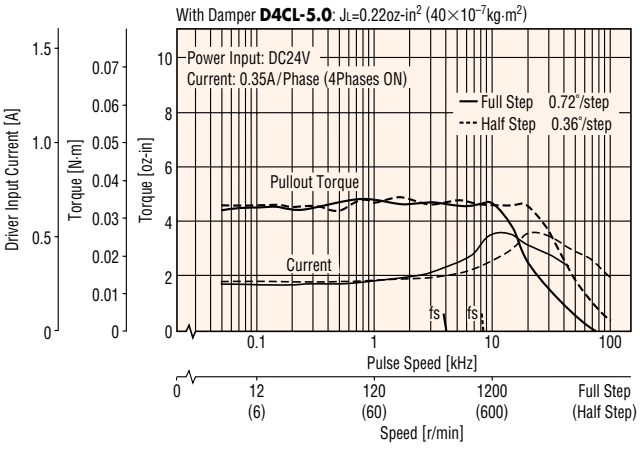
- Maximum holding torque refers to the holding torque at motor standstill when the rated current is supplied to the motor (5 phase excitation). Use this value to compare motor torque performance. When using the motor with the included driver, the driver's "Automatic Current Cutback" function at motor standstill reduces maximum holding torque by approximately 50%.
- The power source input current value represents the maximum current. (The input current varies according to the pulse frequency.)

■ SPEED vs.TORQUE CHARACTERISTICS

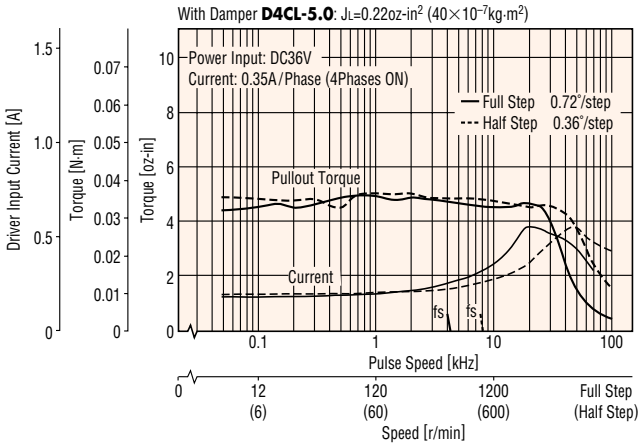
fs: Maximum Starting Pulse Rate

●Standard Type

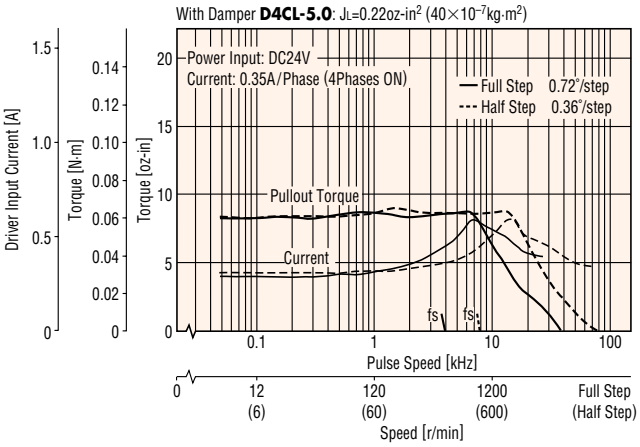
PMC33B3 DC24V



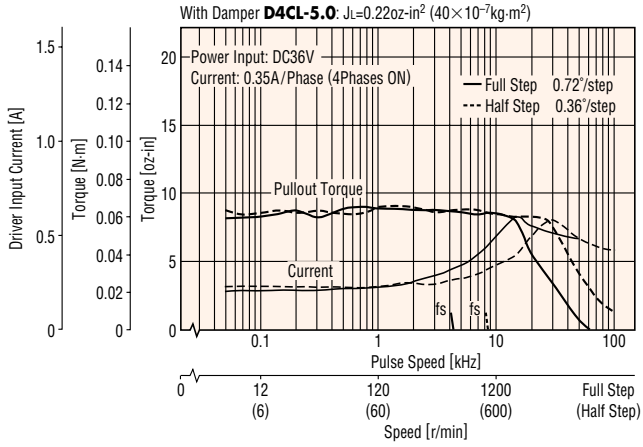
PMC33B3 DC36V



PMC35B3 DC24V



PMC35B3 DC36V



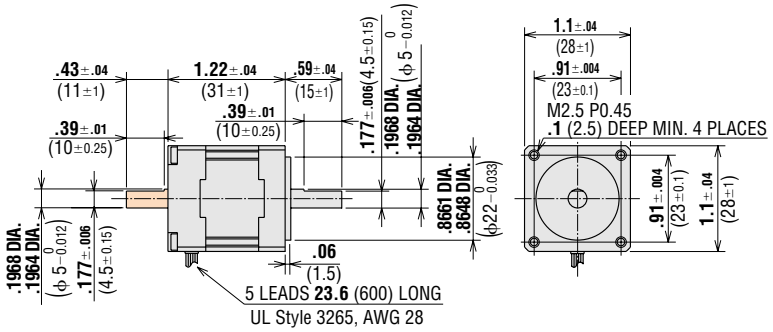
Note:

- Pay attention to heat dissipation from the motor and driver. The motor will produce a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 212°F (100°C).
- When using the motor with the dedicated driver, the driver's "Automatic Current Cutback" function at motor standstill reduces maximum holding torque by approximately 50%.

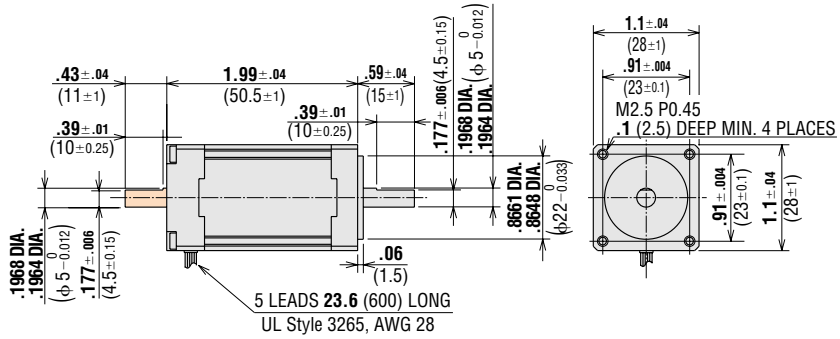
■ DIMENSIONS Scale 1/2, Unit = inch (mm)

●Motor

PMC33A3 (Single shaft)
Motor Model : PMM33A2 Weight 0.22 lb. (Mass 0.1kg)
PMC33B3 (Double shaft)
Motor Model : PMM33B2 Weight 0.22 lb. (Mass 0.1kg)



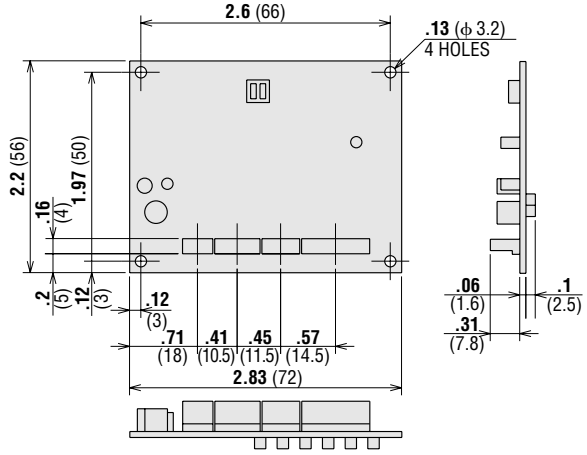
PMC35A3 (Single shaft)
Motor Model : PMM35A2 Weight 0.38 lb. (Mass 0.17kg)
PMC35B3 (Double shaft)
Motor Model : PMM35B2 Weight 0.38 lb. (Mass 0.17kg)



●These dimensions are for double shaft models. For single shaft, ignore the colored areas.
●See page B-36 for information on motor installation.

●Driver

Driver Model : PMD03CA Weight 0.06 lb. (Mass 0.025kg)



●Connector Housings (included)
6-173977-3 (AMP)
6-173977-4 (AMP)
6-173977-5 (AMP)
6-173977-8 (AMP)

Note:
Use the connector assembly tool (AMP 911790-1) when assembling the connectors.
The connector tool is not provided with the package.

●See page B-38 for information on driver installation.

■ PRODUCT NUMBER CODE

PMC 3 3 A 1 - MG 3.6

- 3.6 — Gear Ratio
- MG — Geared Type
- 1 — Reference Number
- A — Single Shaft B: Double Shaft
- 3 — Motor Case Length
- 3 — Motor Frame Size 1.1 in. (28mm) sq.
- PMC — PMC Series

■ SPECIFICATIONS: GEARED TYPE

Package Model		Single Shaft	PMC33A1-MG3.6	PMC33A1-MG7.2	PMC33A1-MG10	PMC33A1-MG20	PMC33A1-MG30
		Double Shaft	PMC33B1-MG3.6	PMC33B1-MG7.2	PMC33B1-MG10	PMC33B1-MG20	PMC33B1-MG30
Maximum Holding Torque		oz-in/N·m	11.1/0.08	22.2/0.16	29.1/0.21	47.2/0.34	70.8/0.51
Rotor Inertia		oz-in/kg·m^2	$0.05/9\times10^{-7}$				
Rated Current		A/phase	0.35				
Basic Step Angle			0.2°	0.1°	0.072°	0.036°	0.024
Gear Ratio			3.6:1	7.2:1	10:1	20:1	30:1
Permissible Torque		oz-in/N·m	11.1/0.08	22.2/0.16	29.1/0.21	47.2/0.34	70.8/0.51
Permissible Thrust Load		lb./N	2.2/10				
Permissible Overhung Load		lb./N	3.3/15				
Direction of Gear shaft Rotation			Same as motor		Opposite to motor	Same as motor	
Permissible Speed Range (Gear Output Shaft Speed)		Full Step	0~25000Hz (0~833r/min)	0~25000Hz (0~416r/min)	0~25000Hz (0~300r/min)	0~25000Hz (0~150r/min)	0~25000Hz (0~100r/min)
		Half Step	0~50000Hz (0~833r/min)	0~50000Hz (0~416r/min)	0~50000Hz (0~300r/min)	0~50000Hz (0~150r/min)	0~50000Hz (0~100r/min)
Insulation Class			Class B [(266°F (130°C)]				
Power Source			DC 24V±10% 0.7A or DC 36V±10% 0.7A				
Output Current		A/phase	0.35				
Excitation Mode		Full Step	0.2°/step	0.1°/step	0.072°/step	0.036°/step	0.024°/step
		Half Step	0.1°/step	0.05°/step	0.036°/step	0.018°/step	0.012°/step
Input Signals	Input Signal Circuit		Photocoupler input, Input resistance 220Ω, Input current 20mA maximum Signal voltage Photocoupler ON: +4~+5V, Photocoupler OFF: 0~+0.5V				
	● Pulse Signal (CW Pulse Signal)		Step command pulse signal (CW step command signal at 2-pulse input mode) Pulse width: 5μs minimum, Pulse rise/fall: 2μs maximum Motor moves when the photocoupler state changes from ON to OFF.				
	● Rotational Direction Signal (CCW Pulse Signal)		Rotation direction signal Photocoupler ON: CW, Photocoupler OFF: CCW (CCW step command signal at 2-pulse input mode Pulse width: 5μs minimum, Pulse rise/fall: 2μs maximum Motor moves when the photocoupler state changes from ON to OFF.)				
	● Step Angle Signal		Full Step at "photocoupler OFF" Half Step at "photocoupler ON"				
	● All Windings Off Signal		When in the "photocoupler ON" state, the current to the motor is cut off and the motor shaft can be rotated manually. When in the "photocoupler OFF" state, the current level set by the RUN switch is supplied to the motor.				
	● Automatic Current Cutback Release Signal		When in the "photocoupler ON" state, the "Automatic Current Cutback" function at motor standstill is disabled. When in the "photocoupler OFF" state, the "Automatic Current Cutback" function at motor standstill is activated. (approximately 100ms after motor stops)				
Output Signals	Output Signal Circuit		Photocoupler, Open-Collector Output External use condition: 24V DC maximum, 10mA maximum				
	● Excitation Timing Signal		Signal is output every time the excitation sequence returns to the initial stage "0". (Photocoupler : ON) Full step: Signal is output every 10 pulses, Half Step : Signal is output every 20 pulses				
Functions			Automatic current cutback, All winding off, Pulse input mode switch				
Driver Cooling Method			Natural Ventilation				
Weight (Mass)		Motor lb. (kg)	0.36 (0.16)				
		Driver lb. (kg)	0.06 (0.025)				
Insulation Resistance			100MΩ minimum under normal temperature and humidity, when measured by a DC500V megger between the motor coils and the motor casing.				
Dielectric Strength			Sufficient to withstand 0.5kV, 60Hz applied between the motor coils and casing for one minute, under normal temperature and humidity.				
Ambient Temperature Range		Motor	+14°F~+122°F (−10°C~+50°C)				
		Driver	+32°F~+104°F (0°C~+40°C)				

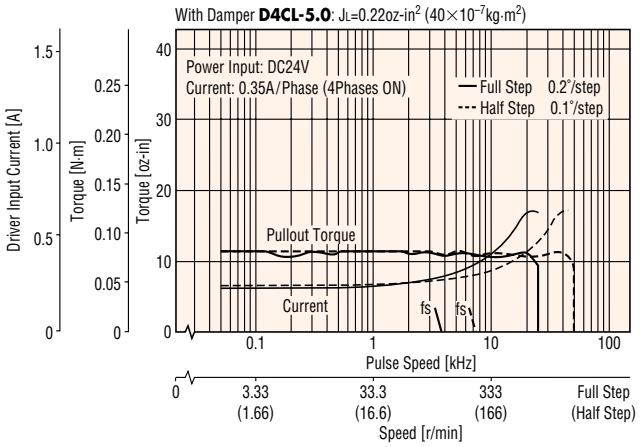
- Maximum holding torque refers to the holding torque at motor standstill when the rated current is supplied to the motor (5-phase excitation), with consideration given to the permissible strength of the gear. Use this value to compare motor torque performance. When using the motor with the dedicated driver, the driver's "Automatic Current Cutback" function at motor standstill reduces maximum holding torque by approximately 50%.
- The power source input current value represents the maximum current. (The input current varies according to the pulse frequency.)
- Permissible torque is the marginal value of the mechanical strength of the gear unit. Use the product with a total torque (load and acceleration) less than the permissible torque.
- Maximum overhung load indicates the value measured at 0.39inch (10mm) from the tip of the gear output shaft.
- Direction of rotation of the motor and that of the gear output shaft are the same for gear ratios of 3:6.1, 7.2:1, 20:1 and 30:1. It is opposite for the 10:1 ratio.

■ SPEED vs.TORQUE CHARACTERISTICS

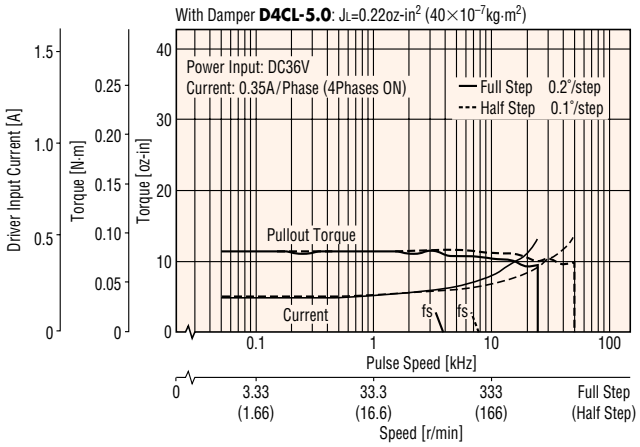
fs: Maximum Starting Pulse Rate

●Geared Type

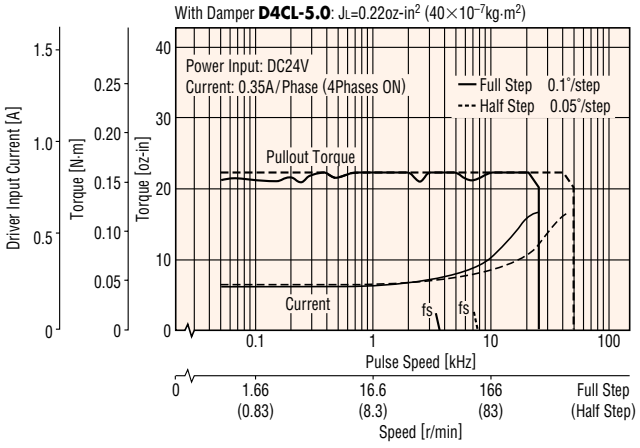
PMC33B1-MG3.6 DC24V



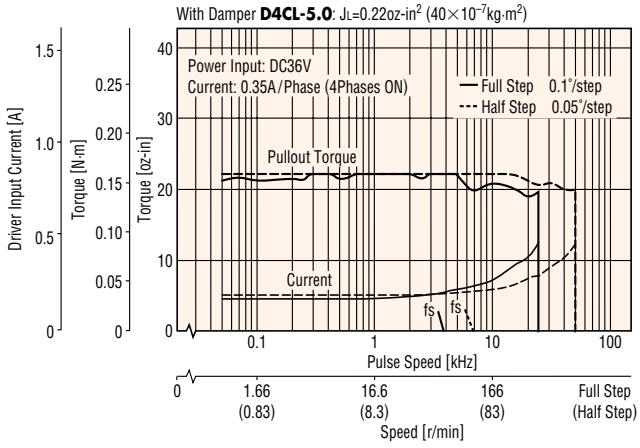
PMC33B1-MG3.6 DC36V



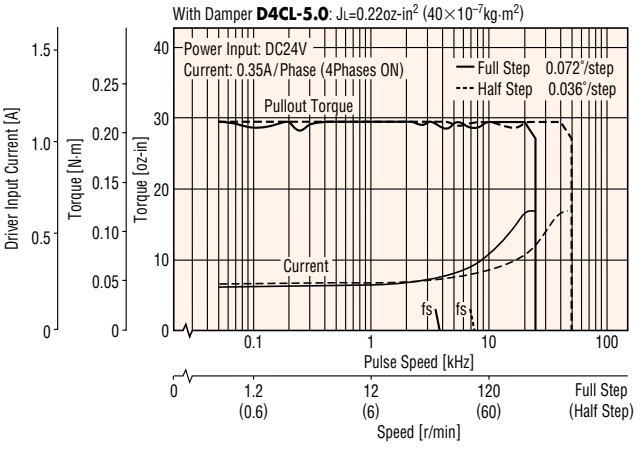
PMC33B1-MG7.2 DC24V



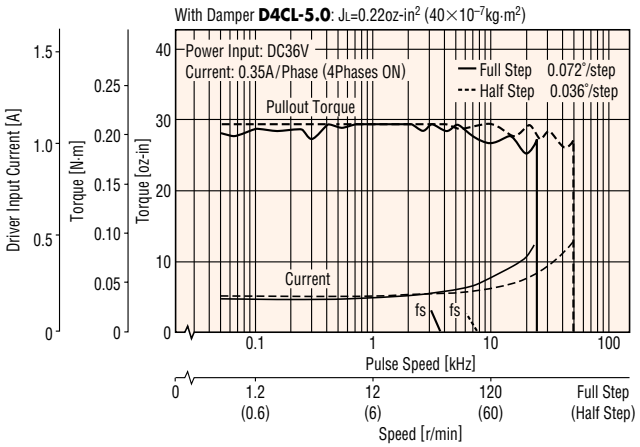
PMC33B1-MG7.2 DC36V



PMC33B1-MG10 DC24V



PMC33B1-MG10 DC36V



Note:

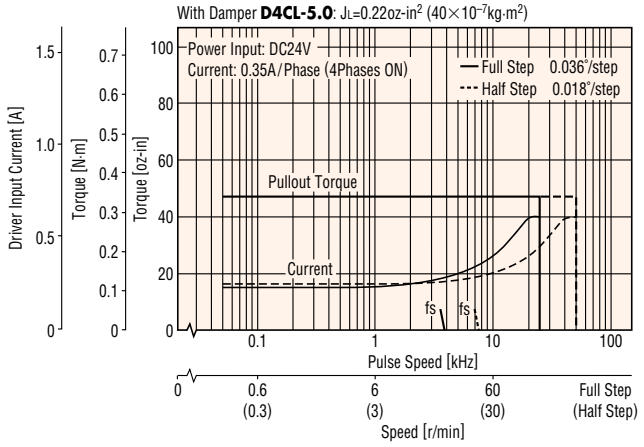
- Pay attention to heat dissipation from the motor and driver. The motor will produce a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 212°F (100°C).
- When using the motor with the dedicated driver, the driver's "Automatic Current Cutback" function at motor standstill reduces maximum holding torque by approximately 50%.

■ SPEED vs.TORQUE CHARACTERISTICS

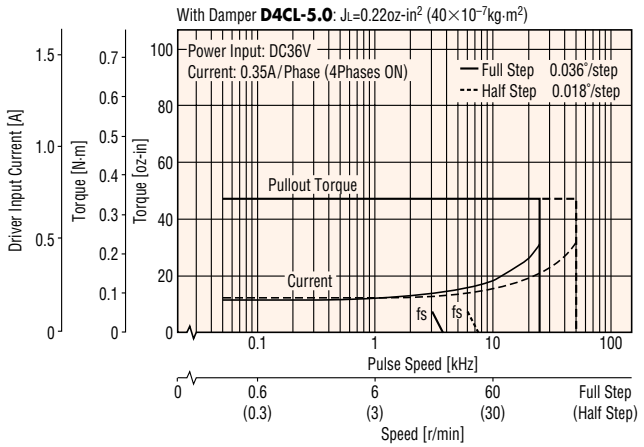
fs: Maximum Starting Pulse Rate

●Geared Type

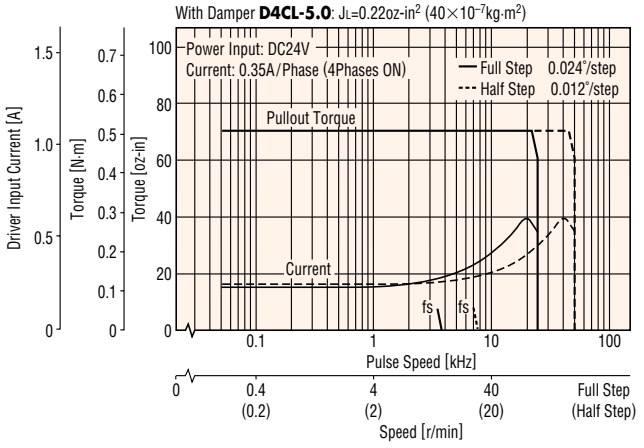
PMC33B1-MG20 DC24V



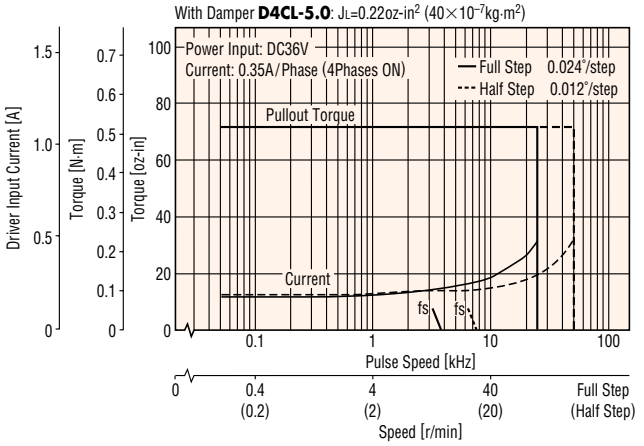
PMC33B1-MG20 DC36V



PMC33B1-MG30 DC24V



PMC33B1-MG30 DC36V



Note:

- Pay attention to heat dissipation from the motor and driver. The motor will produce a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 212°F (100°C).
- When using the motor with the dedicated driver, the driver's "Automatic Current Cutback" function at motor standstill reduces maximum holding torque by approximately 50%.

■ PRECAUTIONS

When using the **PMC** series, please note the following:

1. Do not exceed the maximum permissible torque:

Permissible torque represents the maximum value of the mechanical strength of the gear unit. Be sure to keep the total value of acceleration/deceleration torque and load (friction) torque at the shaft under the permissible torque value. If torque exceeding the permissible torque is applied, the gear unit may break down.

2. Be careful of backlash in positioning for bi-directional applications:

Backlash is the free rotation angle (i.e., play) of the output shaft when the input section of the reduction gear is fixed. If there is a problem with backlash in bi-directional positioning, be sure to stop the motor in one direction. Typical backlash amount is 1-2 degrees.

3. Do not exceed the permissible speed range:

Do not exceed the maximum output speed of the gearhead indicated in the specifications on page B-202. The speed affects the life of the gear head (i.e., backlash becomes large). Be sure to use the gear unit within the maximum permissible speed range.

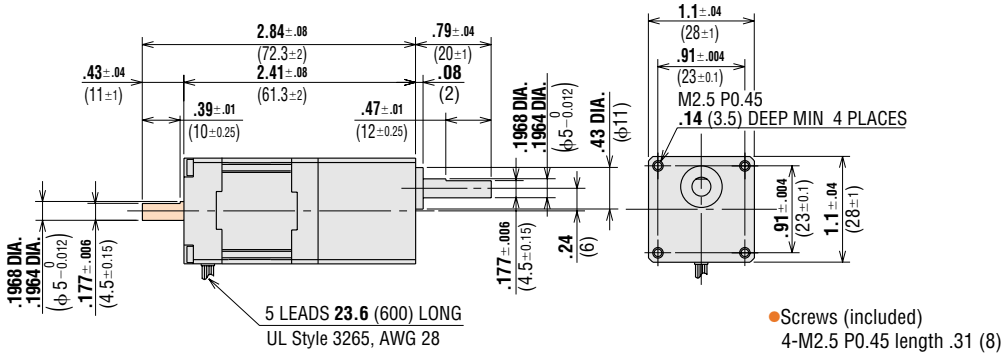
4. The direction of gear-shaft rotations differs according to gear ratios:

The direction of motor-shaft rotation and gear-shaft rotation depends on the gear ratio used:
Gear ratio - 3.6:1, 7.2:1, 20:1 and 30:1 - Same
Gear ratio - 10:1 - Opposite

■ DIMENSIONS scale 1/2, unit = inch (mm)

●Geared Motor

PMC33A1-MG□ (Single shaft)
Motor Model : PMM33A-MG□ Weight 0.36 lb. (Mass 0.16kg)
PMC33B1-MG□ (Double shaft)
Motor Model : PMM33B-MG□ Weight 0.36 lb. (Mass 0.16kg)

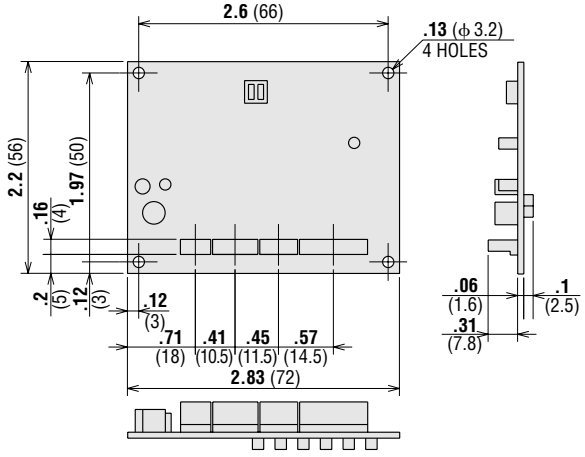


●Screws (included)
4-M2.5 P0.45 length .31 (8)

●This dimension is for double shaft model. For single shaft, ignore the colored area.
●See page B-36 for information on motor installation.

●Driver

Driver Model : PMD03CA Weight 0.06 lb. (Mass 0.025kg)



●Connector Housings (included)
6-173977-3 (AMP)
6-173977-4 (AMP)
6-173977-5 (AMP)
6-173977-8 (AMP)

Note:
Use the connector assembly tool (AMP 911790-1) when assembling the connectors.
The connector tool is not provided with the package.

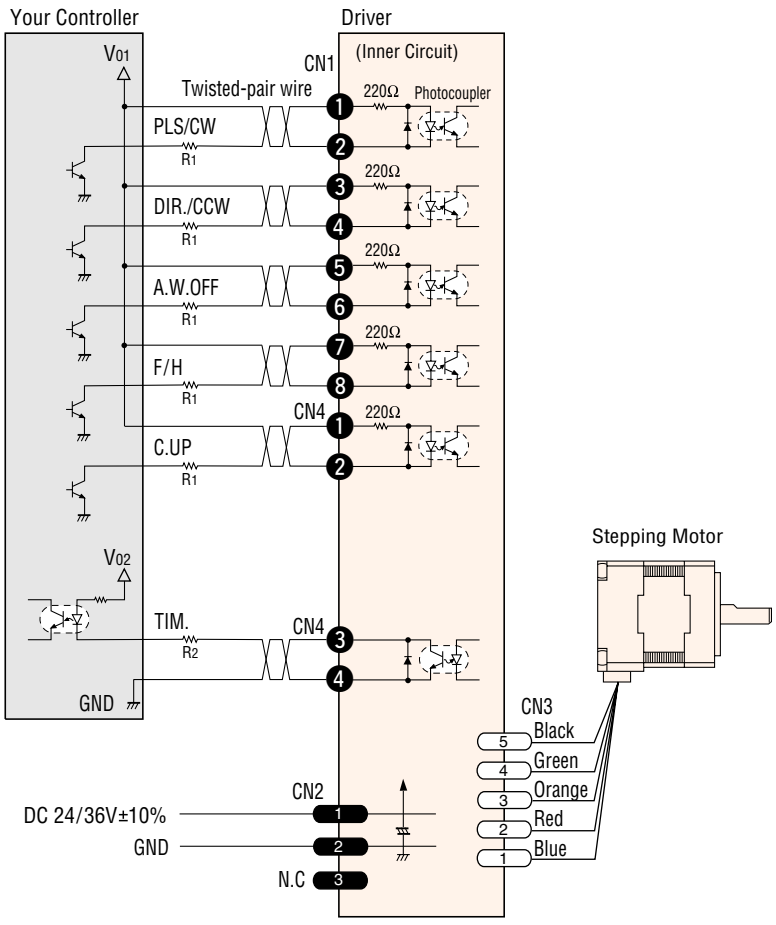
●See page B-38 for information on driver installation.

■ LIST OF MOTOR AND DRIVER COMBINATIONS

Type	Package model	Stepping motor		Driver
		Model	Current A/phase	Model
Standard	**PMC33□3** **PMC35□3**	PMM33□2 PMM35□2	0.35	PMD03CA
Geared	**PMC33□1-MG3.6** **PMC33□1-MG7.2** **PMC33□1-MG10** **PMC33□1-MG20** **PMC33□1-MG30**	PMM33□-MG3.6 PMM33□-MG7.2 PMM33□-MG10 PMM33□-MG20 PMM33□-MG30	0.35	PMD03CA

Enter **A** (single shaft) or **B** (double shaft)in the □ within the model numbers.

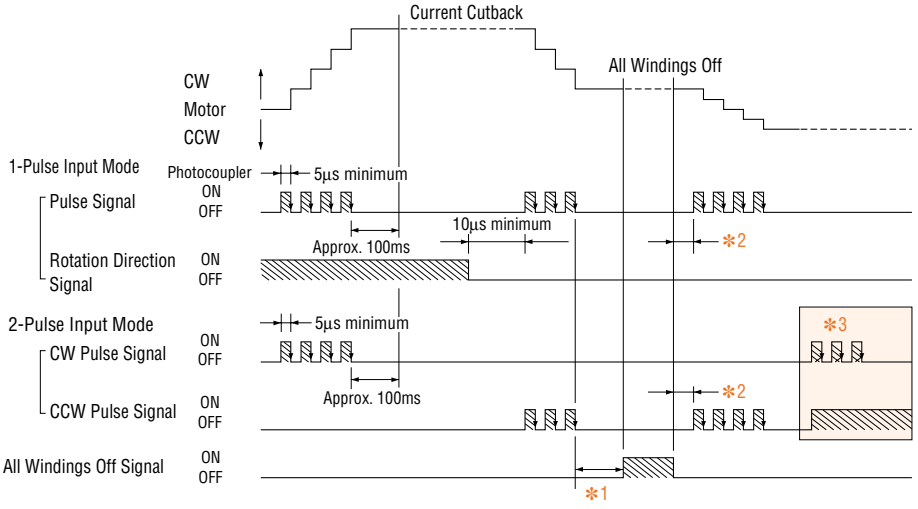
■ WIRING DIAGRAM



Note:

- When voltage is above 5V, connect external resistance R1 and keep the input current below 20mA.
- If the current exceeds 10mA, connect external resistance R2.
- Use twisted-pair wire of 1.2×10^{-4}in^2 (0.08mm^2) or thicker and 6.6 feet (2m) or less in length for the signal lines.
- The suitable wire size for the CN1, CN2, CN3 and CN4 connectors is between AWG28 and 26. Use wires rated at AWG26 [2.2×10^{-4}in^2 (0.14mm^2)] for the power line.
- Signal lines should be kept at least 3.9 inch (10cm) away from power lines (power supply lines and motor lines). Do not bind the signal lines and power line together.
- If noise generated by the motor lead wire causes a problem, try shielding of the motor lead wires with conductive tape or wire mesh.
- Recommended diameter of insulating material of wires is between 0.03 inch (0.85mm) and 0.04 inch (1.05mm).

■ Timing Chart



The photocoupler diode is on in the shaded area.
The motor moves when the photocoupler state changes from "ON" to "OFF" as indicated by arrow.

✻1 It is recommended to wait a period of time before inputting the "All Windings Off" signal to allow the motor oscillations to end. This time varies with the load inertia, the load torque and the starting pulse rate. Do not input the "All Windings Off" signal before the motor has stopped.

✻2 Never input pulse signals immediately after switching the "All Windings Off" signal to the "photocoupler OFF" state or the motor may lose synchronism. In general, an interval of 100ms (minimum) is required.

✻3 In 2-pulse input mode, the motor will not operate properly when inputting a pulse is signal while either the CW or CCW pulse is already in the "photocoupler ON" state.

●Pulse Input

1. 1-Pulse Input Mode

Pulse Signal

"Pulse" signal is input to the PLS/CW. − terminal. When the photocoupler state changes from "ON" to "OFF", the motor rotates one step. The direction of rotation is determined by the rotation direction signal.

Rotation Direction Signal

The "Rotation Direction" signal is input to DIR./CCW. − terminal.

A "photocoupler ON" signal input commands a clockwise direction rotation. A "photocoupler OFF" signal input commands a counter-clockwise direction rotation.

2. 2-Pulse Input Mode

CW Pulse Signal

Pulse signal is input to the CW/P. − terminal. When the photocoupler state changes from "ON" to "OFF", the motor rotates one step in the clockwise direction.

CCW Pulse Signal

Pulse signal is input to the CCW/D. − terminal. When the photocoupler state changes from "ON" to "OFF", the motor rotates one step in the counterclockwise direction.

●All Windings Off (A.W.OFF) Input

When the "All Windings Off" (A.W.OFF) signal is in the "photocoupler ON" state, the current to the motor is cut off and motor torque is reduced to zero. The motor output shaft can then be rotated freely by hand.

When the A.W.OFF signal is in the "photocoupler OFF" state, the motor holding torque is proportional to the current set by the current adjustment rotary switches. During motor operation be sure to keep the signal in the "photocoupler OFF" state.

This signal is used when moving the motor by external force or manual home position is desired. If this function is not needed, it is not necessary to connect this terminal.

●Step Angle (F/H) Input

When the "Step Angle" (F/H) signal is in the "photocoupler ON" state, half step mode (0.36˚/step) has been selected; when the F/H signal is in the "photocoupler OFF" state, full step mode (0.72˚/step) has been selected.

●Automatic Current Cutback Release (C.UP) Input

When the "Automatic Current Cutback Release" (C.UP) signal is in the "photocoupler ON" state, the "Automatic Current Cutback" function is not activated; even after the motor has stopped, current set with the RUN potentiometer will continue flowing to the motor.

When the C.UP signal is in the "photocoupler OFF" state, the "Automatic Current Cutback" function is activated; approximately 100ms after the motor has stopped, current set with the STOP potentiometer will flow to the motor.

Approximately 100ms after the input pulses have stopped, the current is reduced; when the input signal drops to 10Hz or below, the current cutback function works for each pulse.

●Excitation Timing (TIM.) Output

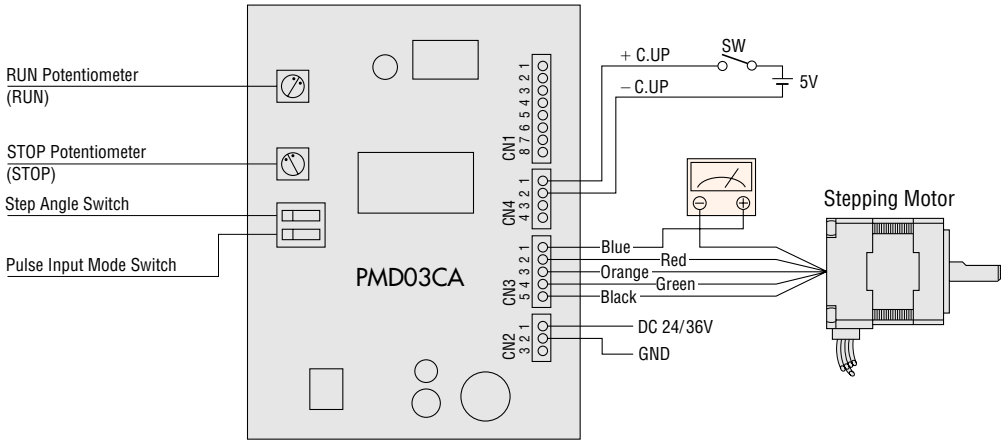
The signal is output once each time the excitation sequence returns to step "0" in synchronization with input pulses. The excitation sequence is designed to complete one cycle as the motor shaft rotates 7.2˚. A signal is output every 10 pulses in full step mode (0.72˚/step) and every 20 pulses in half step mode (0.36˚/step).

■ ADJUSTING THE DRIVER OUTPUT CURRENT

The rated output current is set at the factory. When it is necessary to change the current setting, follow the procedures described below.

Connecting an ammeter

Connect a DC ammeter between the motor and pin ① of connector CN3 as shown in the diagram below.



- After connecting the DC ammeter to the motor, turn on the power. (The excitation status at this point is fixed: power on reset.)
- When the power is turned on, the motor enters a 4 phase excitation state, and +directional current flows through the blue motor lead wire. (Even if 4-5 phase excitation has been selected, the motor enters a 4 phase excitation state when the power is turned on. Adjust the current in this state.)
- The value measured by the ammeter represents the total current in two phases. The current for one phase is equivalent to half of the ammeter value. (When setting the current to 0.3A/phase, adjust the current level until the ammeter reads 0.6A)

Note:
- Do not input a pulse signal.
- Set the "All Windings Off" (C.OFF) signal in the "photocoupler OFF" state.
- The current at motor standstill changes when the operating current is adjusted.

1. Adjusting the Motor Operating Current:

Set "Automatic Current Cutback Release" (C.UP) signal in the "photocoupler ON" state when adjusting the operating current.

(1) Adjust the motor operating current with the RUN potentiometer. It can be adjusted from 0.07A/phase to 0.35A/phase.
(2) The motor operating current is set for a rated current of 0.35 A/phase at the time of shipping, but it can be readjusted using the RUN potentiometer to lower the operating current in order to suppress temperature rise in the motor/driver, or lower operating current in order to allow a margin for motor torque or to reduce vibration.

Note: Do not operate the motor at a current in excess of the rated value as this may cause damage to the driver. (The driver will not be damaged, however, if the current level momentarily exceeds the rated value during current adjustment.)

2. Adjusting the Current at Motor Standstill:

Set "Automatic Current Cutback Release" (C.UP) signal in the "photocoupler OFF" state when adjusting the current while the motor is stopped.

(1) Adjust the current at motor standstill with the STOP potentiometer. It can be adjusted from 0.07A/phase to 0.28 A/Phase.
(2) At the time of shipping, the current at motor standstill is set for 50% of the rated current. The STOP potentiometer can be used to readjust the current at motor standstill to the current value required to produce enough holding torque.

$$\text{Holding Torque} = \frac{\text{Rated Holding Torque} \times \text{Current at Motor Standstill [A]}}{\text{Motor Rated Current [A]}}$$