

SANMOTION

CLOSED LOOP STEPPING SYSTEMS

Model No.PB

With EtherCAT interface



SANYO DENKI

SANMOTION

CLOSED LOOP STEPPING SYSTEMS

Model No.PB

Power voltage DC24V / 48V

Driver



Dual axis driver with EtherCAT interface

Motor



Flange size

28mm sq. · 42mm sq. · 60mm sq.



Model

Standard Model · Spur Gear Model · Low-backlash Gear Model ·
Harmonic Gear Model · Electromagnetic Brake Model



EtherCAT®

High-Speed Field-Bus EtherCAT Interface

EtherCAT is a field-bus system that allows 100Mbps high-speed and highly reliable communication. With this interface, response speed is boosted up, and takt time is greatly reduced.

Space-Saving

Now one driver can control 2 motors, installation space will be reduced by 30% when compared to the case with controlling by our 2 conventional drivers*.

*SANMOTION Model No.PB DC power input type (Model No. : PB3D003M20□)

Also Ideally Suited for Equipment Requiring Synchronizing Operation

The driver can perform dual-axis synchronizing operation. (While in profile position mode)

Encoder Available According to Use

In addition to an incremental encoder, an absolute encoder is also available that does not require zero-return/push operation when the power is turned on.

List of Driver/Motor Combinations and Option

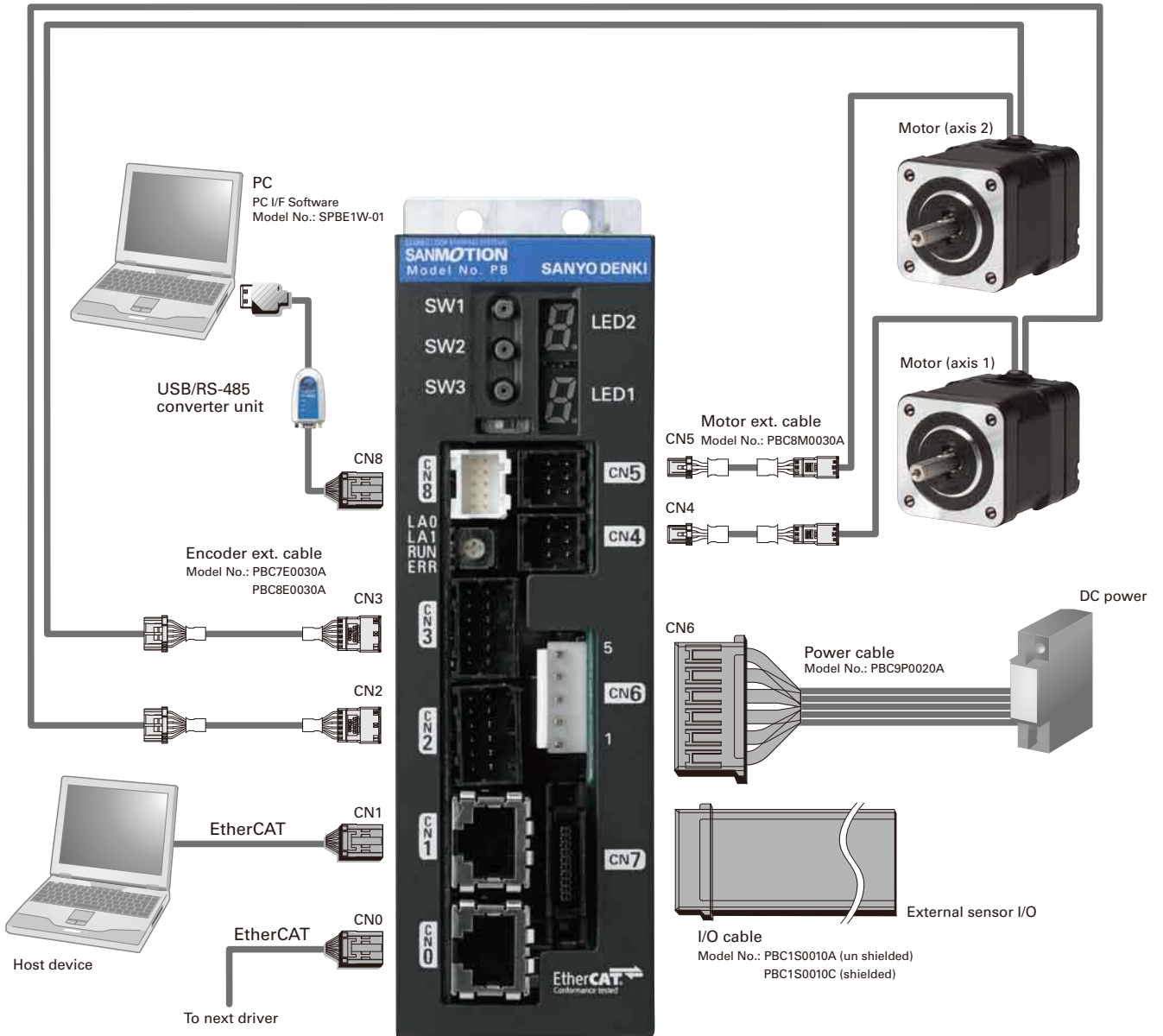
Driver		Model No.	PB4D003E2D0	PB4D003EAD0	
		Interface type	EtherCAT	EtherCAT	
		Encoder type	Incremental encoder (500P/R)	Absolute encoder (17bit + multiple rotation 16bit)	
Motor	Flange size 28mm sq.	Standard		PBM282FXE50	—
				PBM284FXE50	—
		Spur gear	1/3.6	PBM282FGAE50	—
			1/7.2	PBM282FGBE50	—
			1/10	PBM282FGEE50	—
			1/20	PBM282FGGE50	—
			1/30	PBM282FGJE50	—
			1/50	PBM282FGLE50	—
		Harmonic gear	1/50	PBM282FHLE50	—
			1/100	PBM282FHME50	—
	Electromagnetic brake		PBM282FCE50	—	
			PBM284FCE50	—	
	Flange size 42mm sq.	Standard		PBM423FXE50	PBM423FXS50
				PBM423FGAE50	—
		Low-backlash gear	1/3.6	PBM423FGAE50	—
			1/7.2	PBM423FGBE50	—
			1/10	PBM423FGEE50	—
			1/20	PBM423FGGE50	—
			1/30	PBM423FGJE50	—
		Harmonic gear	1/30	PBM423FHJE50	—
			1/50	PBM423FHLE50	—
			1/100	PBM423FHME50	—
	Electromagnetic brake		PBM423FCE50	—	
	Flange size 60mm sq.	Standard		PBM603FXE50	PBM603FXS50
				PBM604FXE50	PBM604FXS50
		Low-backlash gear	1/3.6	PBM603FGAE50	—
			1/7.2	PBM603FGBE50	—
			1/10	PBM603FGEE50	—
			1/20	PBM603FGGE50	—
			1/30	PBM603FGJE50	—
Harmonic gear		1/50	PBM603FHLE50	—	
		1/100	PBM604FHME50	—	
Electromagnetic brake		PBM603FCE50	—		
		PBM604FCE50	—		
Options	Power cable		PBC9P0020A		
	Motor ext. cable		PBC8M0030A		
	Encoder ext. cable		PBC7E0030A	PBC8E0030A	
	I/O cable		PBC1S0010A (un shielded) PBC1S0010C (shield)		
	PC I/F software		SPBE1W-01		
	USB / RS-485 converter unit		PBFM-U6		
	Regenerative resistor		PBF E-R1		

Motor Standard Specifications

Motor type	DC model	
Model No.	PBM282F□E50, PBM284F□E50 (Flange size 28mm sq.)	PBM423F□□50 (Flange size 42mm sq.), PBM603F□□50, PBM604F□□50 (Flange size 60mm sq.)
Insulation class	Class B (130°C)	
Withstand voltage *	AC500V 50/60Hz 1minute	AC1500V 50/60Hz 1minute
Insulation resistance *	DC500V 100 MΩ MIN.	
Degrees of protection	IP40	
Vibration resistance	147m/s ² (10 to 70Hz: amplitude 1.52mm, 70 to 2000Hz: 147m/s ² of acceleration) The x, y, and z are each tested 12 times with a sweep time of 15 minutes/cycle.	
Impact resistance	294m/s ² (half sine wave with 11ms duration) The x, y and z are each tested three times for each direction for a total of 18 tests.	
Ambient temperature	-10°C to +40°C (harmonic gear model 0°C to +40°C)	
Ambient humidity	20 to 90%RH (No condensation)	

* The user should not test the insulation resistance or insulation withstand voltage, because a capacitor has been inserted between the encoder output groundline and the frame to prevent noise.

System Configuration

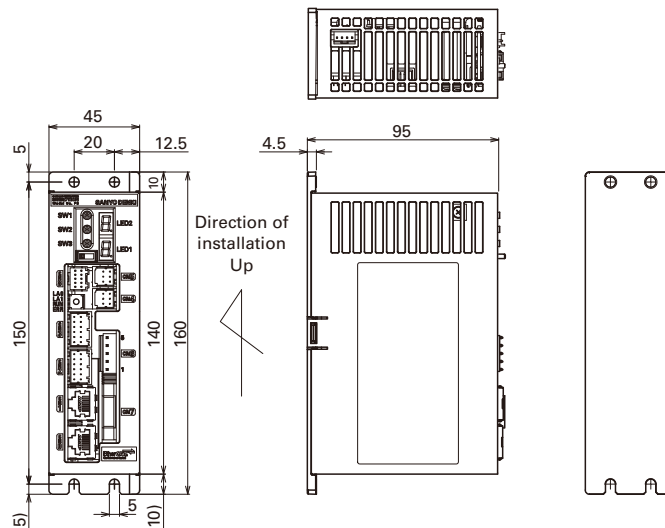


Driver Specifications

General Specifications

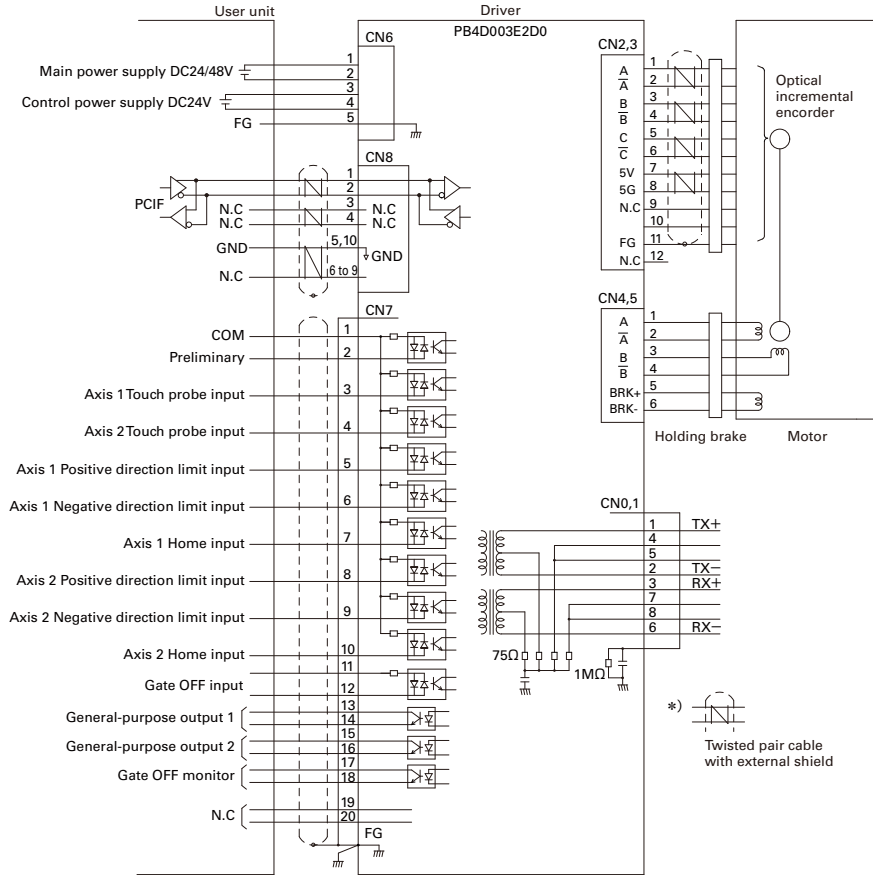
Driver model		PB4D003E2D0	PB4D003EAD0
Encoder specification		Optical incremental (500P/R)	Absolute (17 bit + multiple rotation 16 bit)
Applicable motor model No.		PBM282, PBM284, PBM423, PBM603, PBM604	PBM423, PBM603, PBM604
Power source		Main power supply DC24/48V ±10% 5A Control power supply DC24V ±10% 0.5A	
Control mode		PWM control SIN drive method	
Environment	Ambient temp.	Operating	0 to 55°C
		Storage	-20 to 65°C
	Operating/Storage humidity	90%RH (non-condensing)	
	Vibration resistance	0.5G (tested with frequency range 10 to 55 Hz, X, Y, Z each direction 2H)	
	Impact resistance	5G	
Elevation		Maximum 2000m above sea level	
Structure		Tray structure rear mounting type	
Mass		Approx. 0.5kg	
Dimensions		W45×H160×D95mm	
Functions	Rotation speed	0 to 4500min ⁻¹	
	Resolution (P/R)	10000	32768
	Regeneration Process	Regenerative resistor (Option)	
	Holding brake control function	Internal	
	Protective functions	Power voltage error, Regeneration voltage error, Over-speed, Sensor error, Wrap around, CPU error, Overload stop, Zero-return error, Nonvolatile memory error, Deviation counter overflow, Initialization error, Over-current, Amplifier overheat, Servo error, Push abnormality, Communications abnormality, etc	
	Display	7SEG LED display (2 pieces)	
	Digital operator	Related motor (Absolute encoder is automatically recognized), Jog driving, Node address, Holding brake control	
Interface	Physical layer / Protocol	100BASE-TX / IEEE802.3 compliant ethernet	
	Transmission speed	100Mbit/s Full duplex	
	Communication port / Topology	2 ports (RJ45) / Daisy-chain (Max. 65535 nodes)	
	Device profile	CoE (IEC61800-7-201), FoE (ASCII code access)	
	Synchronization	SM2 event synchronization, DC synchronization (SYNC0 / SYNC1), asynchronous * 0x1C32,0x05: Shortest cycle time = 1ms	
Input/Output signals	Input signals	Functions	Interactive input photo coupler DC5V to 24V
		Electric	Positive & negative direction limit, HOME input: each axis
	Output signals	Functions	Open collector, DC30V/15mA max
		Electric	2 general purpose outputs (each axis), hardware gate OFF input

Driver Dimensions (Unit : mm)

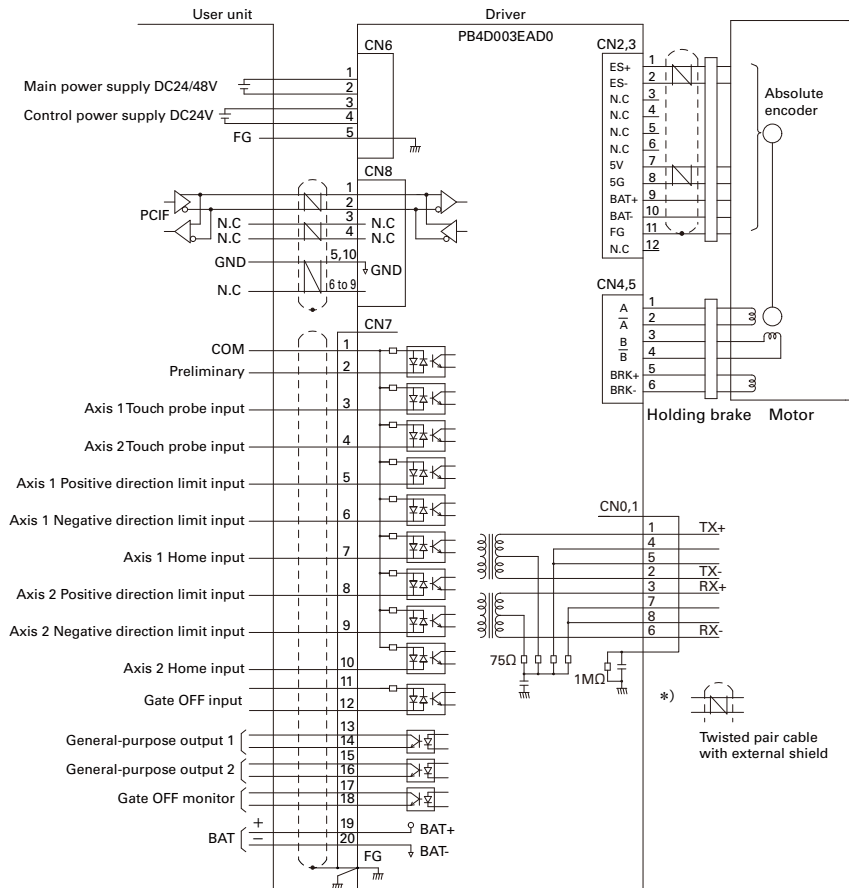


External Wiring Diagram

Driver Model No.: PB4D003E2D0



Driver Model No.: PB4D003EAD0



General Specifications

Driver + Standard Model

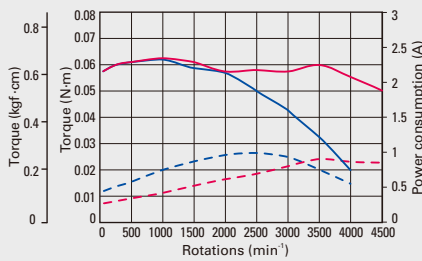
Motor flange size
28mm sq., 42mm sq., 60mm sq.

Size	Motor flange size	28mm sq.		42mm sq.	60mm sq.	
Motor model (Incremental encoder)		PBM282FXE50	PBM284FXE50	PBM423FXE50	PBM603FXE50	PBM604FXE50
Motor length	mm	58.5	77.8	55.9	68.8	100.8
Motor mass	kg	0.16	0.23	0.35	0.85	1.42
Related driver model no.		PB4D003E2D0				
Motor model (Absolute encoder)		—	—	PBM423FXS50	PBM603FXS50	PBM604FXS50
Motor length	mm	—	—	80.4	93.3	125.3
Motor mass	kg	—	—	0.43	0.89	1.46
Related driver model no.		—	—	PB4D003EAD0		
Max. stall torque	N·m	0.055	0.115	0.39	1.3	1.9
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.008	0.016	0.056	0.4	0.84
Allowable thrust load	N	9.8		9.8	14.7	
Allowable radial load <small>Note 1</small>	N	33		49	167	
Motor characteristics chart		①	②	③	④	⑤

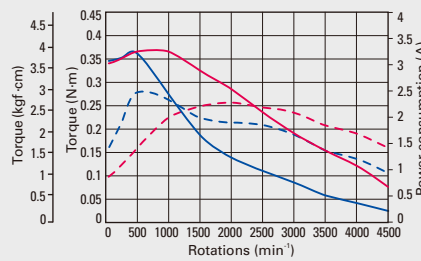
Motor Characteristics Chart

Torque DC24V — DC48V — Power consumption DC24V - - - DC48V - - -

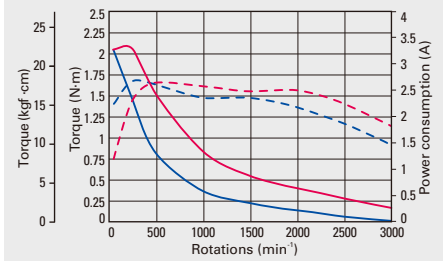
① Motor model PBM282FXE50



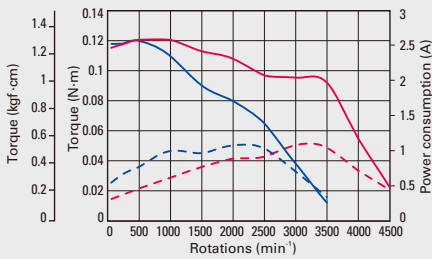
③ Motor model PBM423FX□50



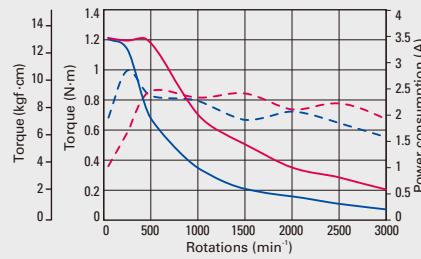
⑤ Motor model PBM604FX□50



② Motor model PBM284FXE50



④ Motor model PBM603FX□50



* Maintain motor case temperature at a point below 85°C.
Note1: The load point is determined at a position 14mm from the mounting surface.

General Specifications

Driver + Spur Gear Model

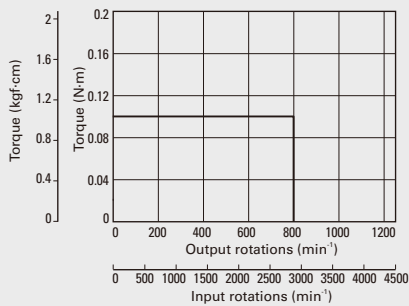
Motor flange size
28mm sq.

Size	Motor flange size	28mm sq.					
	Motor length + Gear length	87.8mm					
Motor model (Incremental encoder)		PBM282FGAE50	PBM282FGBE50	PBM282FGEE50	PBM282FGGE50	PBM282FGJE50	PBM282FGLE50
Related driver model No.		PB4D003E2D0					
Allowable torque	N·m	0.1	0.15	0.2	0.35	0.5	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.009					
Reduction gear ratio		1:3.6	1:7.2	1:10	1:20	1:30	1:50
Backlash	DEG	2		1.5			
Allowable rotations	min^{-1}	800	400	300	150	100	60
Rotation direction	Rel. to command dir.	Forward		Reverse	Forward		
Allowable thrust load	N	10					
Allowable radial load <small>Note1</small>	N	15					
Motor mass	kg	0.22					
Motor characteristics chart		⑥	⑦	⑧	⑨	⑩	⑪

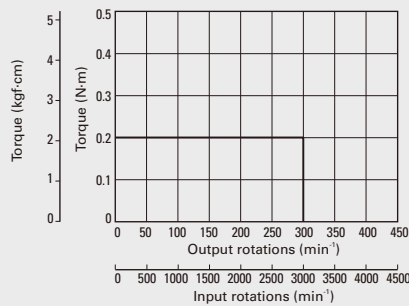
Motor Characteristics Chart

Allowable torque DC24V — DC48V — DC24V/48V —

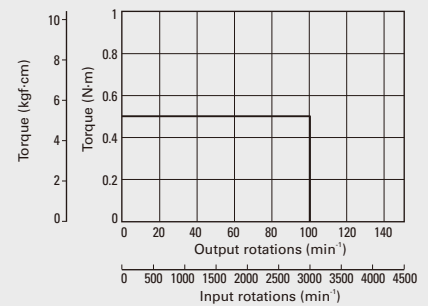
⑥ Motor model PBM282FGAE50



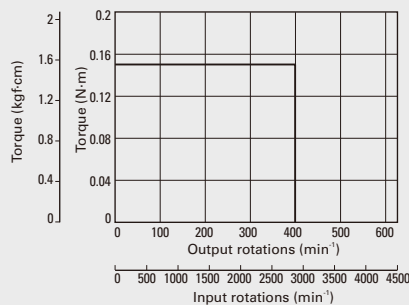
⑧ Motor model PBM282FGEE50



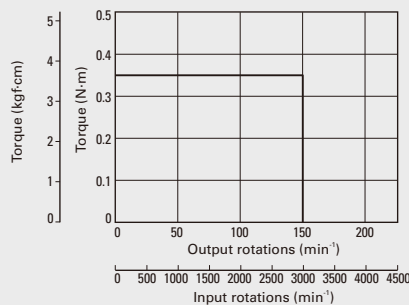
⑩ Motor model PBM282FGJE50



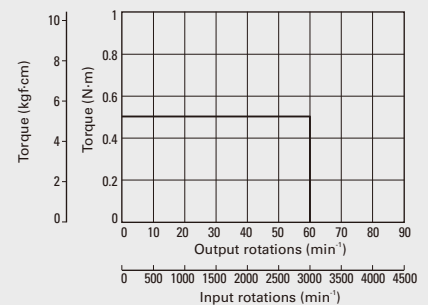
⑦ Motor model PBM282FGBE50



⑨ Motor model PBM282FGGE50



⑪ Motor model PBM282FGLE50



* Maintain motor case temperature at a point below 85°C.

Note1: The load point is determined at a position 1/3 of the length from the output shaft.

General Specifications

Driver + Low-backlash Gear Model

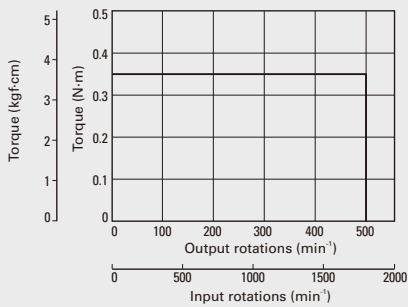
Motor flange size
42mm sq., 60mm sq.

Size	Motor flange size	42mm sq.				
	Motor length + Gear length	86.1mm				
Motor model (Incremental encoder)		PBM423FGAE50	PBM423FGBE50	PBM423FGEE50	PBM423FGGE50	PBM423FGJE50
Related driver model No.		PB4D003E2D0				
Allowable torque	N·m	0.343	0.686	0.98	1.47	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.056				
Reduction gear ratio		1:3.6	1:7.2	1:10	1:20	1:30
Backlash	DEG	0.6	0.4	0.35	0.25	0.25
Allowable rotations	min^{-1}	500	250	180	90	60
Rotation direction	Rel. to command dir.	Forward			Reverse	
Allowable thrust load	N	15				
Allowable radial load <small>Note1</small>	N	20				
Motor mass	kg	0.48				
Motor characteristics chart		①	②	③	④	⑤

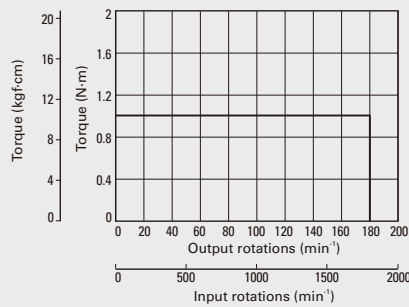
Motor Characteristics Chart

Allowable torque DC24V — DC48V — DC24V/48V —

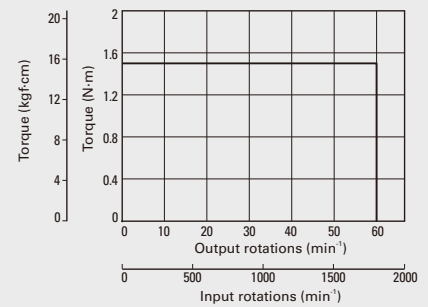
① Motor model PBM423FGAE50



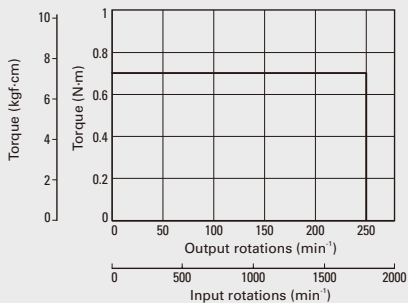
③ Motor model PBM423FGEE50



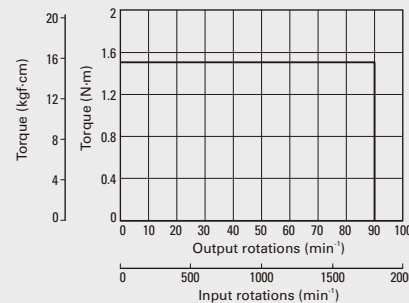
⑤ Motor model PBM423FGJE50



② Motor model PBM423FGBE50



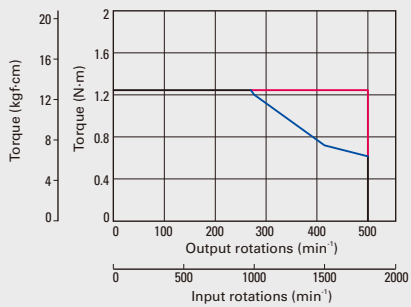
④ Motor model PBM423FGGE50



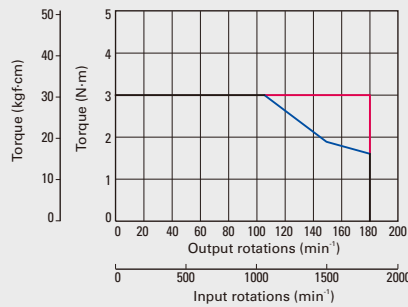
* Maintain motor case temperature at a point below 85°C.
Note1: The load point is determined at a position 1/3 of the length from the output shaft.

Size	Motor flange size	60mm sq.				
	Motor length + Gear length	114.3mm				
Motor model (Incremental encoder)		PBM603FGAE50	PBM603FGBE50	PBM603FGEE50	PBM603FGGE50	PBM603FGJE50
Related driver model No.		PB4D003E2D0				
Allowable torque	N·m	1.25	2.5	3	3.5	4
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.4				
Reduction gear ratio		1:3.6	1:7.2	1:10	1:20	1:30
Backlash	DEG	0.55	0.25		0.17	
Allowable rotations	min^{-1}	500	250	180	90	60
Rotation direction	Rel. to command dir.	Forward			Reverse	
Allowable thrust load	N	30				
Allowable radial load <small>Note1</small>	N	100				
Motor mass	kg	1.22				
Motor characteristics chart		⑥	⑦	⑧	⑨	⑩

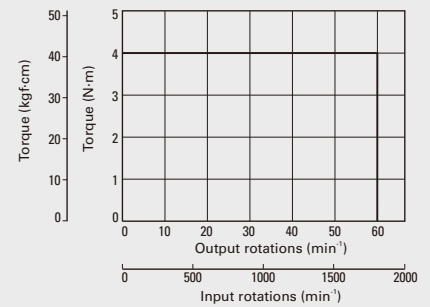
⑥ Motor model PBM603FGAE50



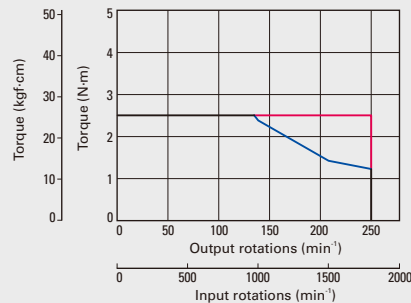
⑧ Motor model PBM603FGEE50



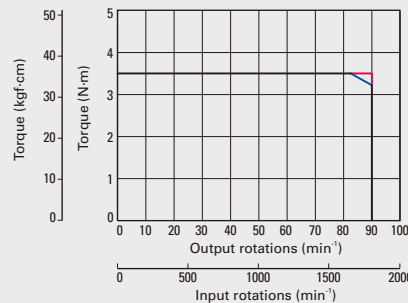
⑩ Motor model PBM603FGJE50



⑦ Motor model PBM603FGBE50



⑨ Motor model PBM603FGGE50



General Specifications

Driver + Harmonic Gear Model

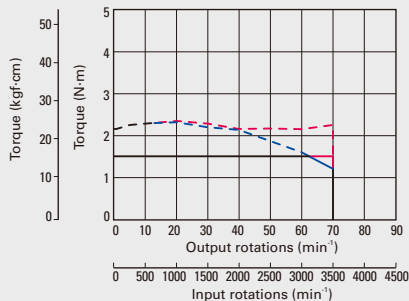
Motor flange size
28mm sq., 42mm sq., 60mm sq.

Size	Motor flange size	28mm sq.		42mm sq.		
	Motor length + Gear length	97mm		95.1mm		
Motor model (Incremental encoder)		PBM282FHLE50	PBM282FHME50	PBM423FHJE50	PBM423FHLE50	PBM423FHME50
Related driver model No.		PB4D003E2D0				
Allowable torque	N·m	1.5	2	2.2	3.5	5
Allow. instantaneous torque	N·m	2.7	3.6	4.5	8.3	11
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.012		0.068		
Reduction gear ratio		1:50	1:100	1:30	1:50	1:100
Lost motion	min	0.4 to 3 ($\pm 0.06 \text{N} \cdot \text{m}$)		0.4 to 3 ($\pm 0.08 \text{N} \cdot \text{m}$)		
Hysteresis loss	min	—		3.6	2.4	
Allowable rotations	min^{-1}	70	35	116	70	35
Allowable thrust load	N	100		1150		
Allowable radial load <small>Note1</small>	N	160		209		
Motor mass	kg	0.27		0.54		
Motor characteristics chart		①	②	③	④	⑤

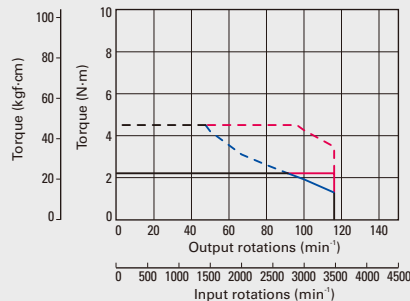
Motor Characteristics Chart

Allowable torque DC24V ——— DC48V ——— DC24V/48V ——— Allow. instantaneous torque DC24V - - - - DC48V - - - - DC24V/48V - - - -

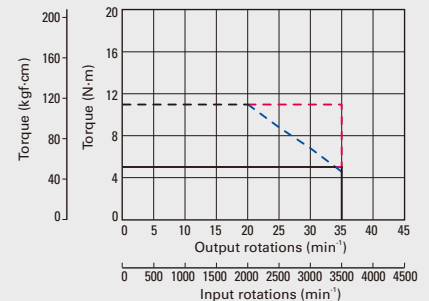
① Motor model PBM282FHLE50



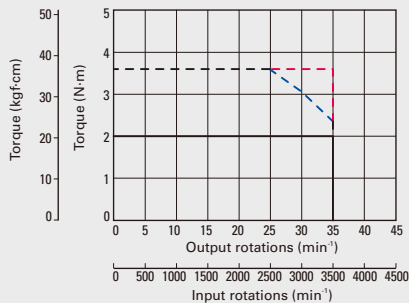
③ Motor model PBM423FHJE50



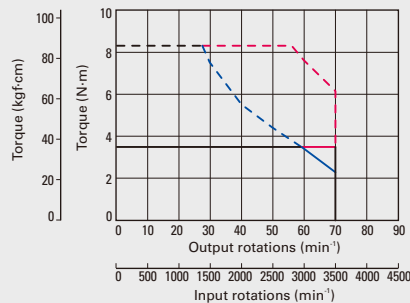
⑤ Motor model PBM423FHME50



② Motor model PBM282FHME50



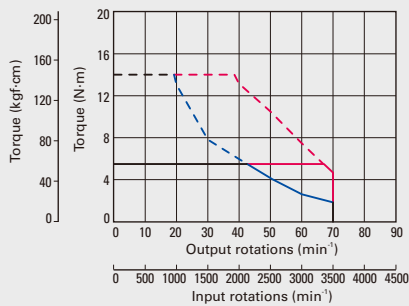
④ Motor model PBM423FHLE50



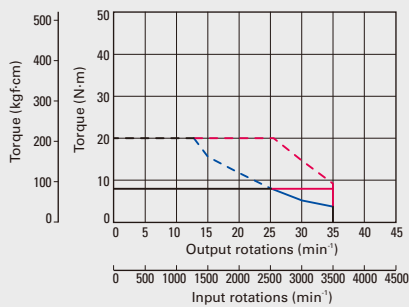
* Maintain motor case temperature at a point below 85°C.
* The gear output shaft rotates in the opposite direction.
Note1: The load point is determined at a position 1/3 of the length from the output shaft.

Size	Motor flange size	60mm sq.	
	Motor length + Gear length	135.8mm	
Motor model (Incremental encoder)		PBM603FHLE50	PBM604FHME50
Related driver model No.		PB4D003E2D0	
Allowable torque	N·m	5.5	8
Allow. instantaneous torque	N·m	14	20
Rotor inertia	$\times 10^{-4}\text{kg}\cdot\text{m}^2$	0.435	
Reduction gear ratio		1:50	1:100
Lost motion	min	0.4 to 3($\pm 0.28\text{N}\cdot\text{m}$)	0.4 to 3($\pm 0.4\text{N}\cdot\text{m}$)
Hysteresis loss	min	—	
Allowable rotations	min^{-1}	70	35
Allowable thrust load	N	400	
Allowable radial load <small>Note1</small>	N	360	
Motor mass	kg	1.45	
Motor characteristics chart		⑥	⑦

⑥ Motor model PBM603FHLE50



⑦ Motor model PBM604FHME50



General Specifications

Driver + Electromagnetic Brake Model

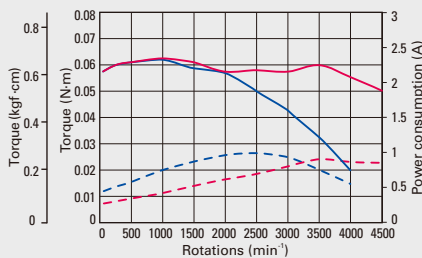
Motor flange size
28mm sq., 42mm sq., 60mm sq.

Size	Motor flange size	28mm sq.		42mm sq.	60mm sq.	
	Motor length + Gear length	90.8mm	117.1mm	88.3mm	108.1mm	140.1mm
Motor model (Incremental encoder)		PBM282FCE50	PBM284FCE50	PBM423FCE50	PBM603FCE50	PBM604FCE50
Related driver model No.		PB4D003E2D0				
MAX. stall torque	N·m	0.055	0.155	0.39	1.3	1.9
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.0091	0.0171	0.07	0.559	1
Allowable thrust load	N	9.8		14.7		
Allowable radial load <small>Note1</small>	N	33		49	167	
Motor mass	kg	0.28	0.35	0.5	1.19	1.76
Electromagnetic brake	Operation method	No excitation actuating type				
	Power voltage	DC24V $\pm 5\%$				
	Excitation current	0.15		0.08	0.25	
	Power consumption	3.6		2	6	
	Friction torque	0.049		0.3	0.78	
	Brake engage time	ms				
	Brake release time	ms		20	30	
Motor characteristics chart		①	②	③	④	⑤

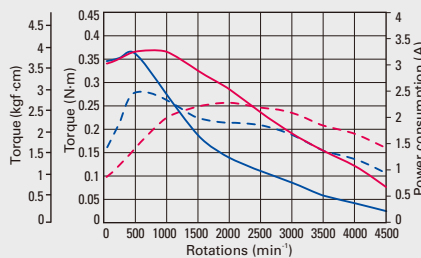
Motor Characteristics Chart

Torque DC24V — DC48V — Power consumption DC24V - - - DC48V - - -

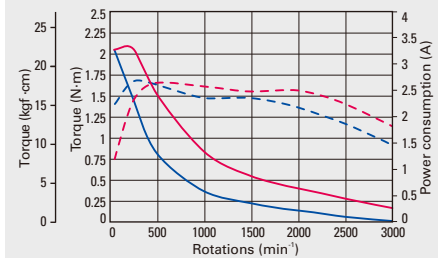
① Motor model PBM282FCE50



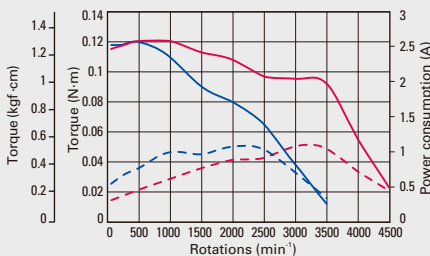
③ Motor model PBM423FCE50



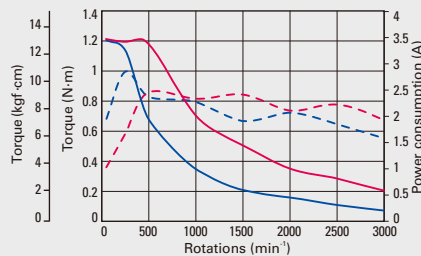
⑤ Motor model PBM604FCE50



② Motor model PBM284FCE50



④ Motor model PBM603FCE50



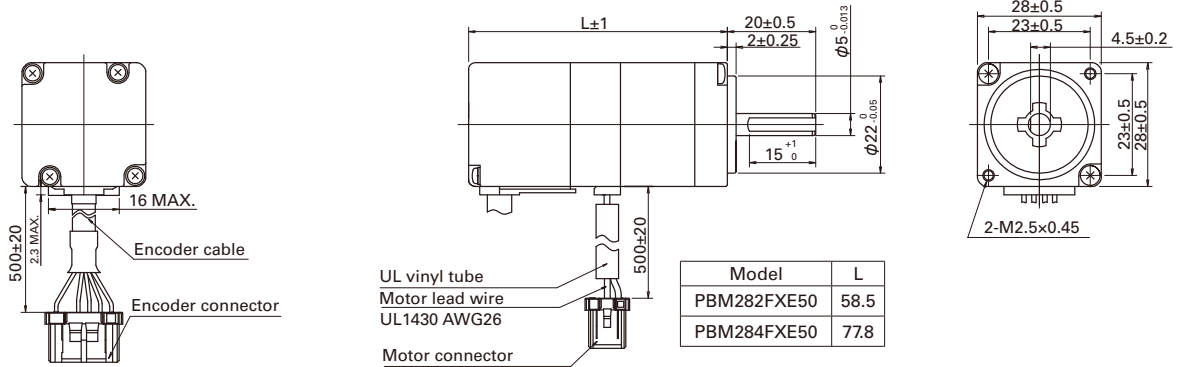
* Maintain motor case temperature at a point below 85°C.
Note1: The load point is determined at a position 1/3 of the length from the output shaft.

Motor Dimensions (Unit : mm)

28mm sq. (Incremental encoder)

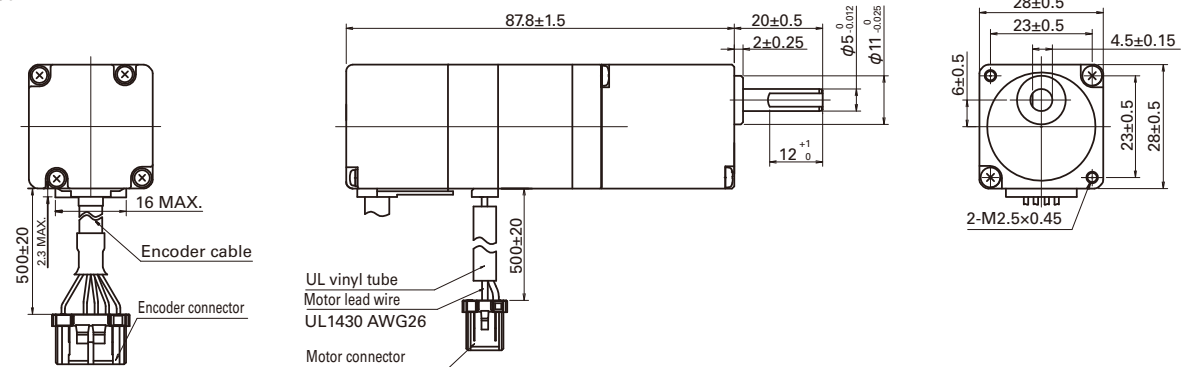
● Standard Model

PBM282FXE50
PBM284FXE50



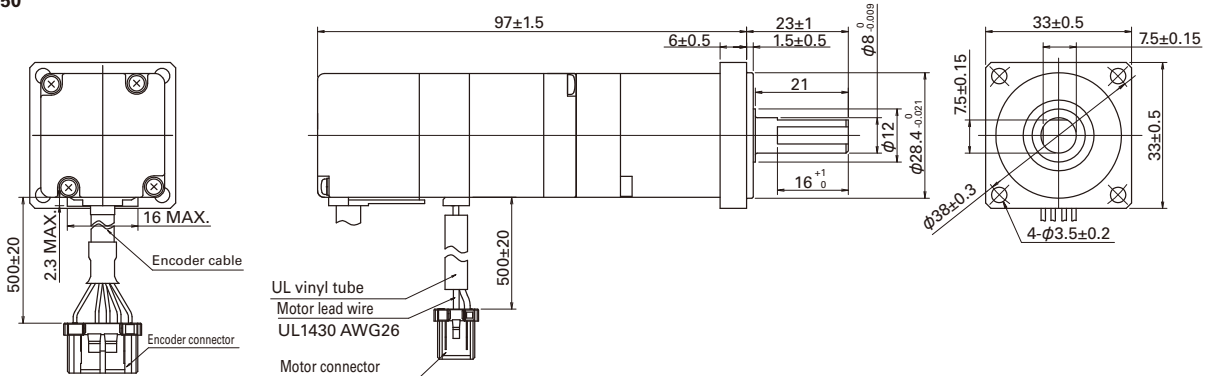
● Spur Gear Model

PBM282FG□E50



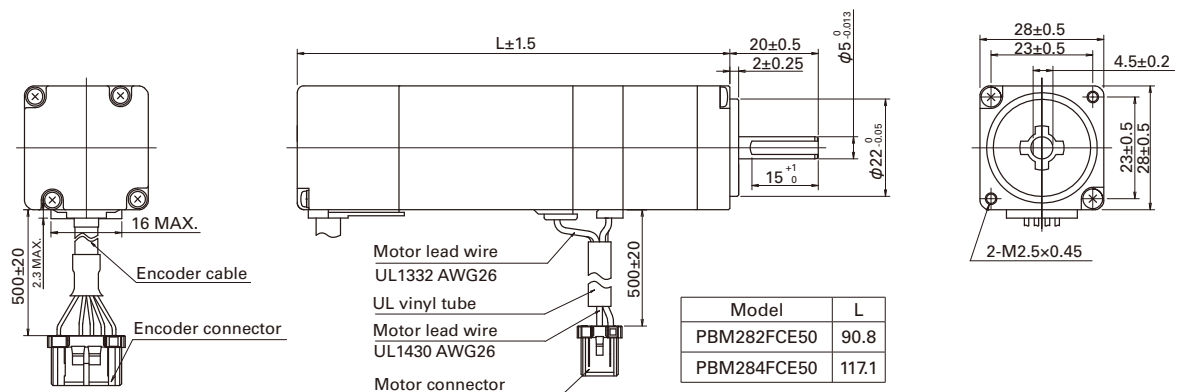
● Harmonic Gear Model

PBM282FH□E50



● Electromagnetic Brake Model

PBM282FCE50
PBM284FCE50

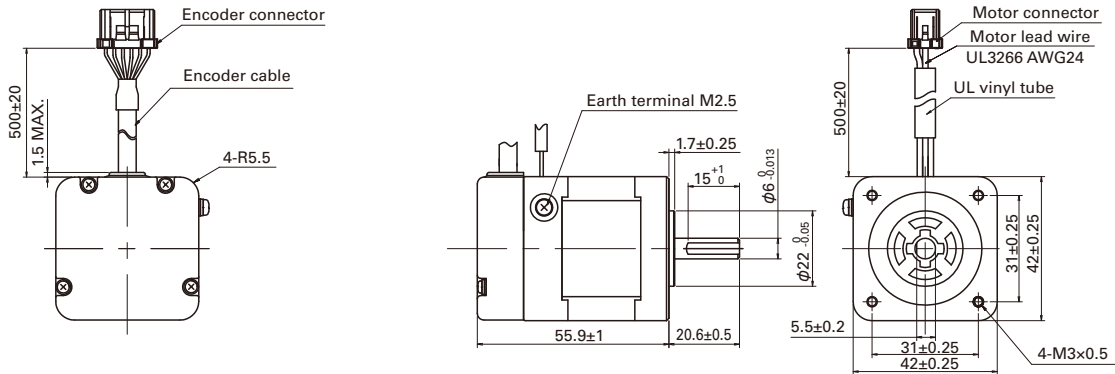


Motor Dimensions (Unit : mm)

42mm sq. (Incremental encoder)

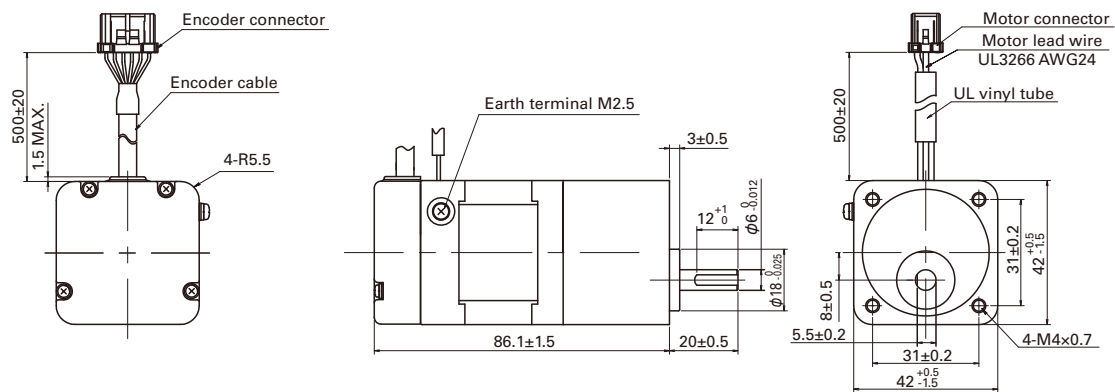
● Standard Model

PBM423FXE50



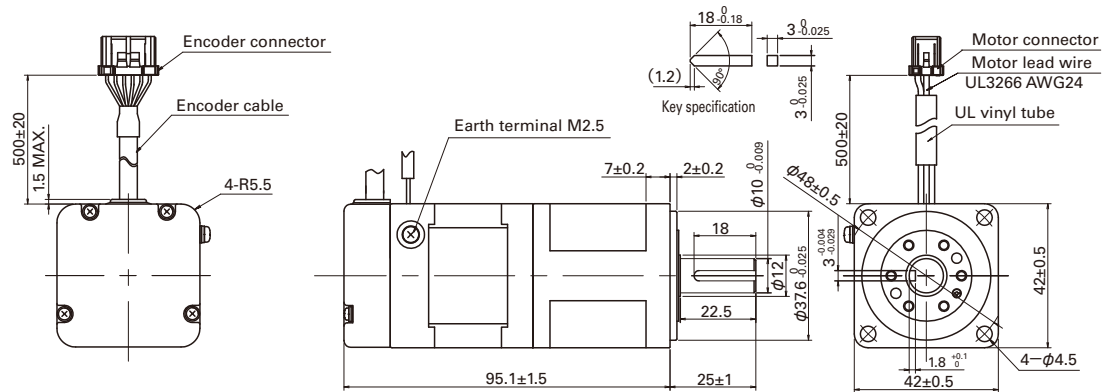
● Low-backlash Gear Model

PBM423FG□E50



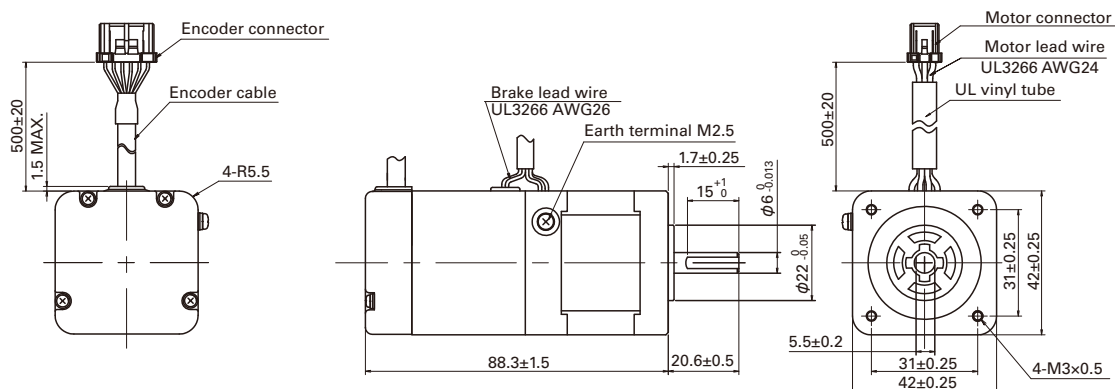
● Harmonic Gear Model

PBM423FH□E50



● Electromagnetic Brake Model

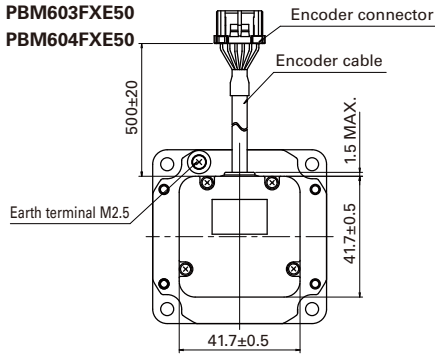
PBM423FCE50



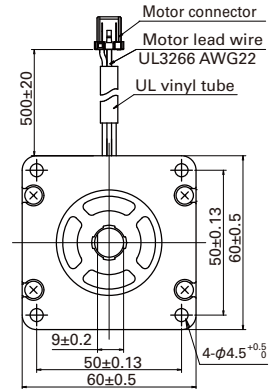
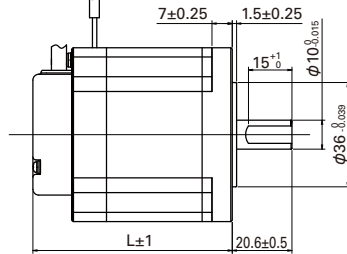
60mm sq. (Incremental encoder)

● Standard Model

PBM603FXE50
PBM604FXE50

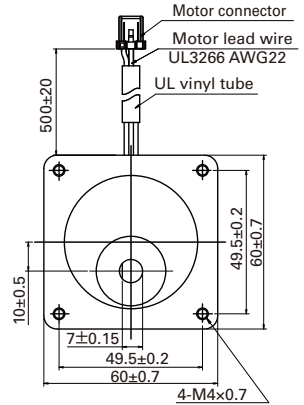
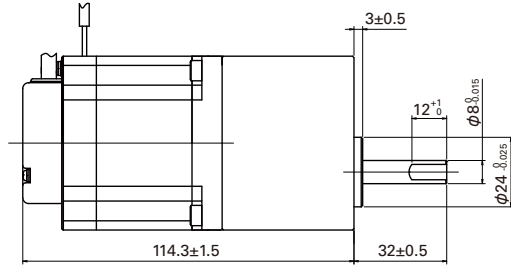
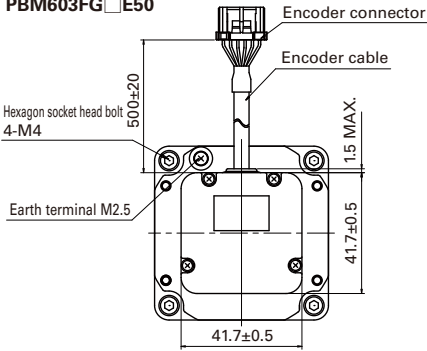


Model	L
PBM603FXE50	68.8
PBM604FXE50	100.8



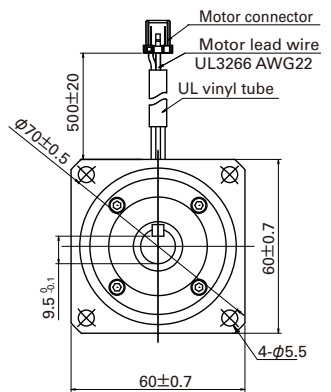
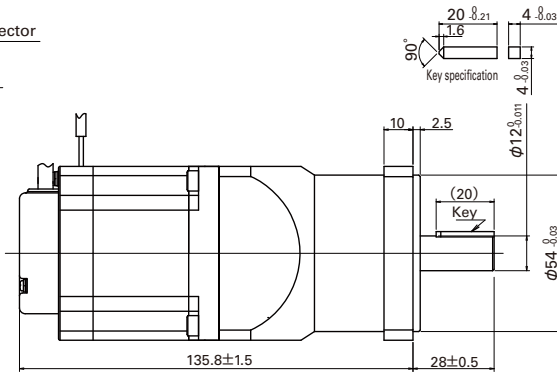
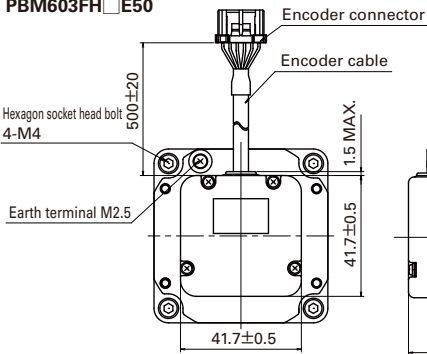
● Low-backlash Gear Model

PBM603FG□E50



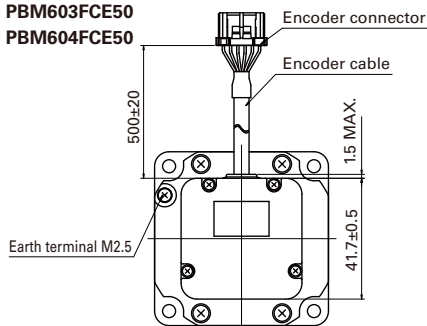
● Harmonic Gear Model

PBM603FH□E50

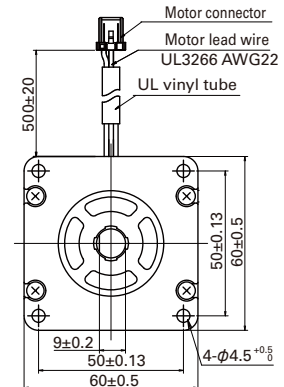
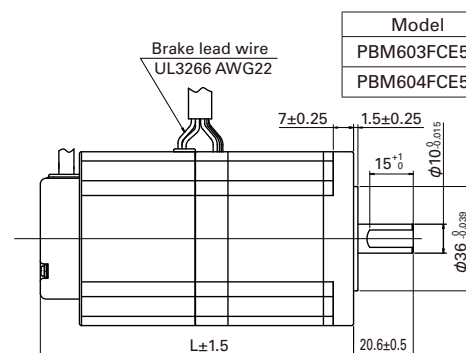


● Electromagnetic Brake Model

PBM603FCE50
PBM604FCE50



Model	L
PBM603FCE50	108.1
PBM604FCE50	140.1

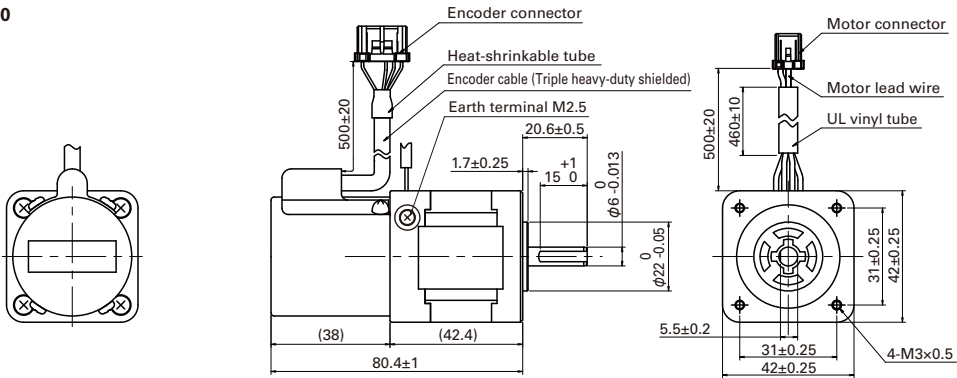


Motor Dimensions (Unit : mm)

42mm sq. (Absolute encoder)

● Standard Model

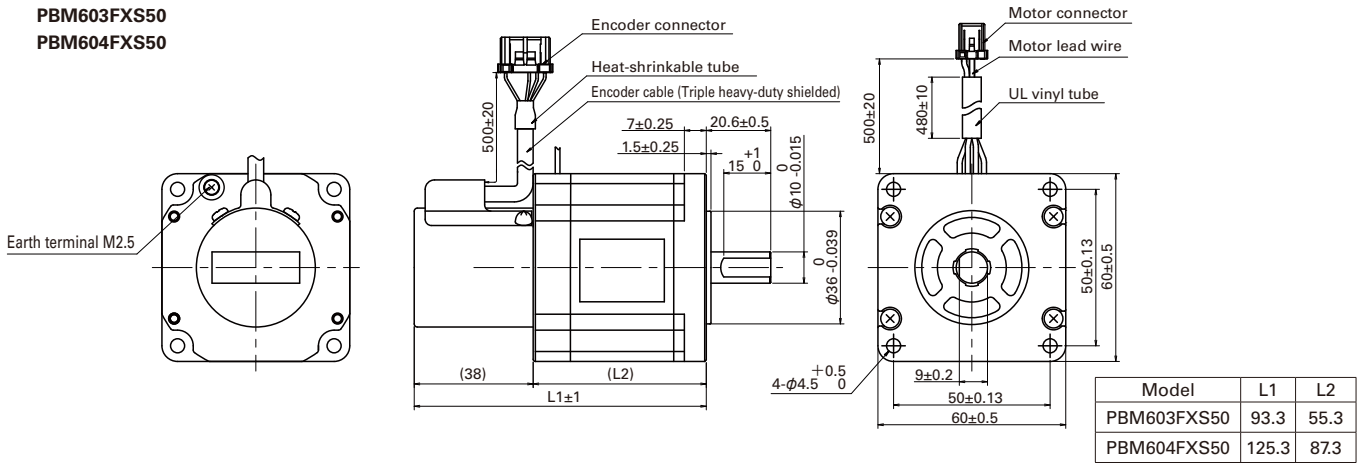
PBM423FXS50



60mm sq. (Absolute encoder)

● Standard Model

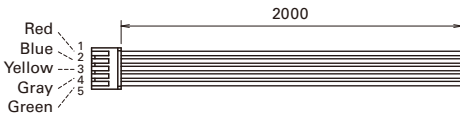
PBM603FXS50
PBM604FXS50



Optional Accessories Dimensions (Unit : mm)

● Power Cable

PBC9P0020A Cable with connectors



Connector Connection of Driver Side

Pin No.	Lead color	Signal name
1	Red	Main power supply DC24/48V
2	Blue	GND
3	Yellow	Control power supply DC24V
4	Gray	GND
5	Green	FG

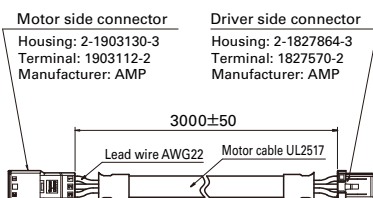
Connector Set Model No.: PBC9P0000A

Manufacturer	Type	Qty.
JST	Contact: SVH-21T-P1.1 Housing: VHR-5N	5 1

Set comprising of connectors only.

● Motor Ext. Cable

PBC8M0030A Cable with connectors



Connector Connection of Motor Side

Pin No.	Lead color	Signal name
A1	Blue	Motor lead wire
B1	Orange	Motor lead wire
A2	Red	Motor lead wire
B2	Yellow	Motor lead wire
A3	White	Brake lead wire
B3	Black	Brake lead wire

Connector Connection of Driver Side

Pin No.	Lead color	Signal name
A1	Blue	Motor lead wire
B1	Orange	Motor lead wire
A2	Red	Motor lead wire
B2	Yellow	Motor lead wire
A3	White	Brake lead wire
B3	Black	Brake lead wire

Connector Set Model No.: PBC8M0000A

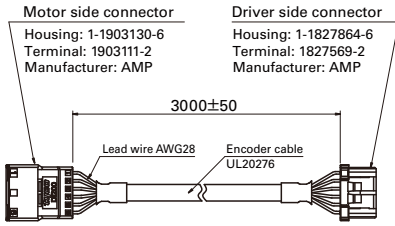
Manufacturer	Type	Qty.
AMP	Housing: 2-1827864-3	1
	Contact: 1827570-2	6
	Housing: 2-1903130-3	1
	Contact: 1903112-2	6

Set comprising of connectors only.

Optional Accessories Dimensions (Unit : mm)

Encoder Ext. Cable (Incremental Encoder)

PBC7E0030A Cable with connectors



Connector Connection of Motor Side

Pin No.	Lead color	Signal name
A1	Blue	Channel A
B1	Brown	Channel Ā
A2	Green	Channel B
B2	Purple	Channel B̄
A3	White	Channel C
B3	Yellow	Channel C̄
A4	Red	+5V
B4	Black	0V
A5	N.C.	—
B5	Orange	Over heat
A6	Black	Shield
B6	N.C.	—

Connector Connection of Driver Side

Pin No.	Lead color	Signal name
A1	Blue	Channel A
B1	Brown	Channel Ā
A2	Green	Channel B
B2	Purple	Channel B̄
A3	White	Channel C
B3	Yellow	Channel C̄
A4	Red	+5V
B4	Black	0V
A5	N.C.	—
B5	Orange	Over heat
A6	Black	Shield
B6	N.C.	—

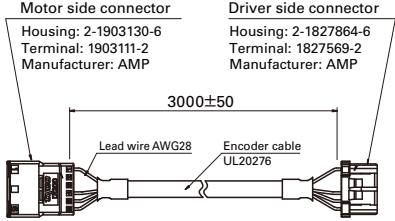
Connector Set Model No.: PBC7E0000A

Manufacturer	Type	Qty.
AMP	Housing: 1-1827864-6	1
	Contact: 1827569-2	10
	Housing: 1-1903130-6	1
	Contact: 1903111-2	10

Set comprising of connectors only.

Encoder Ext. Cable (Absolute Encoder)

PBC8E0030A Cable with connectors



Connector Connection of Motor Side

Pin No.	Lead color	Signal name
A1	Brown	ES+
B1	Blue	ES-
A2	N.C.	—
B2	N.C.	—
A3	N.C.	—
B3	N.C.	—
A4	Red	+5V
B4	Black	0V
A5	Pink	BAT+
B5	Purple	BAT-
A6	Black	Shield
B6	N.C.	—

Connector Connection of Driver Side

Pin No.	Lead color	Signal name
A1	Brown	ES+
B1	Blue	ES-
A2	N.C.	—
B2	N.C.	—
A3	N.C.	—
B3	N.C.	—
A4	Red	+5V
B4	Black	0V
A5	Pink	BAT+
B5	Purple	BAT-
A6	Black	Shield
B6	N.C.	—

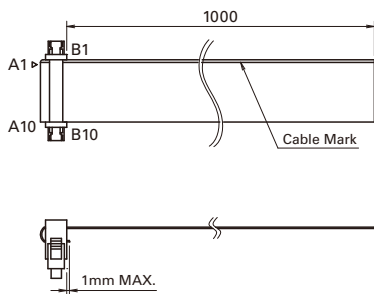
Connector Set Model No.: PBC8E0000A

Manufacturer	Type	Qty.
AMP	Housing: 2-1827864-6	1
	Contact: 1827569-2	7
	Housing: 2-1903130-6	1
	Contact: 1903111-2	7

Set comprising of connectors only.

I/O Cable (unshielded)

PBC1S0010A

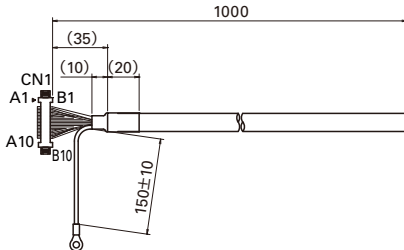


Cable Connection

Cable 1	Cable 2
A1-No.1	B1-No.1
A2-No.2	B2-No.2
A3-No.3	B3-No.3
A4-No.4	B4-No.4
A5-No.5	B5-No.5
⋮	⋮
A9-No.9	B9-No.9
A10-No.10	B10-No.10

I/O Cable (shielded)

PBC1S0010C



CN1 Wiring Chart

CN1 Pin.No.	Mark display	Mark	Line color	CN1 Pin.No.	Mark display	Mark	Line color
A1		Red	Orange	B1		Red	Orange
A2		Black	Orange	B2		Black	Orange
A3		Red	Gray	B3		Red	Gray
A4		Black	Gray	B4		Black	Gray
A5		Red	White	B5		Red	White
A6		Black	White	B6		Black	White
A7		Red	Yellow	B7		Red	Yellow
A8		Black	Yellow	B8		Black	Yellow
A9		Red	Pink	B9		Red	Pink
A10		Black	Pink	B10		Black	Pink

USB/RS-485 Converter Unit

PBFM-U6

Package Contents

Uport 1130 Adapter (Manufacturer: MOXA)	USB/RS-485 Adapter	Adapter with USB cable
	CD-ROM	Documents and driver software for the adapter
	Connector terminal	Connects to cable (between adapter and driver)
Cable (between adapter and driver)	Model No.: PBC6T0005A	Cable length: 500±20mm
		Connector attached on driver side

Pin Arrangement of Connector Terminal

Pin No.	Signal name	Cable (between adapter and driver) lead colors
1	—	—
2	—	—
3	DATA+ (A)	Yellow
4	DATA- (B)	White
5	GND	Black

■ Precautions For Adoption



Failure to follow the precautions on the right may cause moderate injury and property damage, or in some circumstances, could lead to a serious accident. Always follow all listed precautions.

Cautions

- Read the accompanying Instruction Manual carefully prior to using the product.
- If applying to medical devices and other equipment affecting people's lives, please contact us beforehand and take appropriate safety measures.
- If applying to equipment that can have significant effects on society and the general public, please contact us beforehand.
- Do not use this product in an environment where vibration is present, such as in a moving vehicle or shipping vessel.
- Do not perform any retrofitting, re-engineering, or modification to this equipment.
- The amplifiers presented in this catalog are meant to be used for general industrial applications. If using for special applications related to aviation and space, nuclear power, electric power, submarine repeaters, etc., please contact us beforehand.

*For any question or inquiry regarding the above, contact our Sales Department.

<http://www.sanyodenki.com>

SANYO DENKI CO., LTD.

3-33-1, Minami-Otsuka, Toshima-ku, Tokyo, 170-8451, Japan

TEL: +81 3 5927 1020

SANYO DENKI EUROPE SA.

P.A. Paris Nord II, 48 Allée des Erables-VILLEPINTE, BP.57286, F-95958 ROISSY CDG Cedex, France

TEL: +33 1 48 63 26 61

SANYO DENKI AMERICA, INC.

468 Amapola Avenue Torrance, CA 90501, U.S.A.

TEL: +1 310 783 5400

SANYO DENKI SHANGHAI CO., LTD.

Room 2106-2109, Bldg A, Far East International Plaza, No.319, Xianxia Road, Shanghai, 200051, China

TEL: +86 21 6235 1107

Beijing Branch

Room1222, Tower B, Beijing COFCO Plaza, No.8 Jianguomennei Dajie, Dong Cheng District, Beijing 100005 China

TEL: +86 10 6522 2160

SANYO DENKI (H.K.) CO., LIMITED

Room 2305, 23/F, South Tower, Concordia Plaza, 1 Science Museum Road, TST East, Kowloon, Hong Kong

TEL: +852 2312 6250

Tianjin Representative Office

Room AB 16th Floor TEDA Building, No. 256 Jie Fang Nan Road, Hexi District, Tianjin 300042 China

TEL: +86 22 2320 1186

Chengdu Representative Office

Room2105B, Block A, Times Plaza, 2 Zongfu Road, Jinjiang District, Chengdu, 610016 China

TEL: +86 28 8661 6901

SANYO DENKI TAIWAN CO., LTD.

N-711, 7F, Chia Hsin 2nd Bldg., No.96, Sec.2, Zhongshan N. Rd., Taipei 10449, Taiwan (R.O.C.)

TEL: +886 2 2511 3938

SANYO DENKI SINGAPORE PTE. LTD.

988 Toa Payoh North, #04-05/06/07/08, Singapore 319002

TEL: +65 6223 1071

Indonesia Representative Office

Summitmas II 4th Floor, Jl. Jend. Sudirman Kav.61-62, Jakarta 12190, Indonesia

TEL: + 62 21 252 3202

SANYO DENKI GERMANY GmbH

Frankfurter Strasse 92, 65760 Eschborn, Germany

TEL: +49 6196 76113 0

SANYO DENKI KOREA CO., LTD.

9F, Sunhwa B/D 89, Seosomun-ro, Jung-gu, Seoul, 100-731, Korea

TEL: +82 2 773 5623

Busan Branch

8F, CJ Korea Express Bldg., 119, Daegyo-ro, Jung-gu, Busan, 600-016, Korea

TEL: +82 51 796 5151

SANYO DENKI (Shenzhen) CO., LTD.

2F 02-11, Shenzhen International Chamber of Commerce Tower, No.168 Fuhua 3 Road, Futian District, Shenzhen, 518048 China

TEL: +86 755 3337 3868

SANYO DENKI (THAILAND) CO., LTD.

388 Exchange Tower, 25th Floor, Unit 2501-1, Sukhumvit Road, Klongtoey, Klongtoey, Bangkok 10110 Thailand

TEL: +66 2261 8670