FX3000
SPEED CONTROLLER
3000
STAND-BY   RUN
PUSH-SET
DKM

6SDD2-6   DM20LG
DKM
SPEED CONTROL INDUCTION MOTOR
6W 220V 60Hz 0.11A 0.7 µF 90-1700r/min
1Ph. Cont. IP20 Ins.Class B
DKM Motor Co., Ltd.
MADE IN KOREA

DKM Motor Co., Ltd.

292, Yeomjeon-ro, Michuhol-gu, Incheon, Republic of Korea
Tel. 032 574 7788 I Fax. 032 578 7787
www.dkmmotor.com I info@dkmmotor.com

motor & gearbox

DKM Speed Controller

DKM Speed Controller
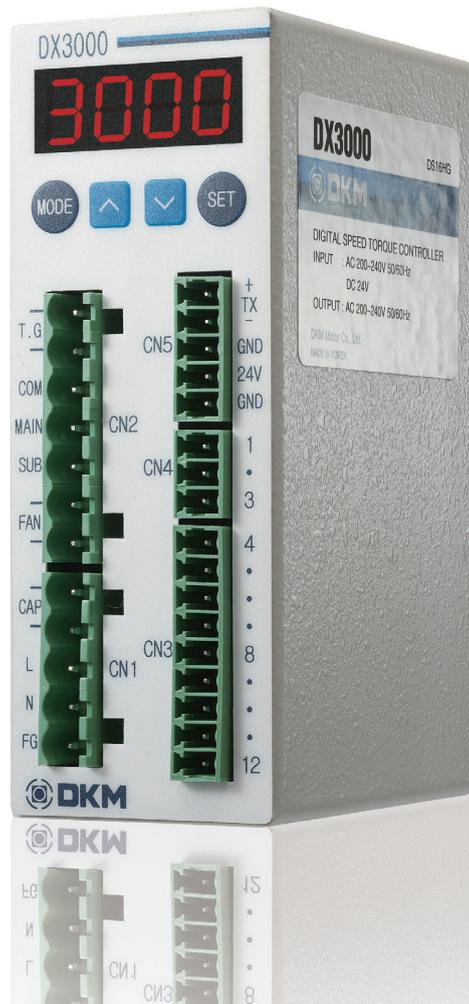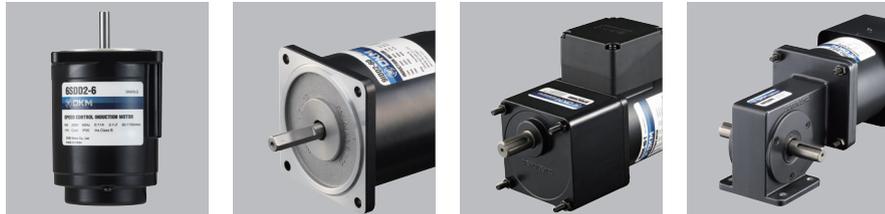
DKM Controller

◉ Line-Up

■ Unit Type

FX3000
– Digital Speed Display
– Speed, Torque Control
– Simple Dial
– Gear Ratio Setting
– Acceleration Time Setting

DSA
– Analog Type
– Speed Control

※ Unit type controller, FX3000 and DSA have built-in capacitor, so there is no need to connect a separate capacitor.

■ Din-Rail Type

DX3000
– RS485 Communication Control
– PLC I/O Control
– Speed, Torque Control
– Four Stage Speed(Torque) Setting
– Gear Ratio Setting
– Acceleration Time Setting

DSKM
– Socket Type Controller
– Multi-Stage Speed Setting (Install external volume separately)
– Electric Brake Function (Install resistance coil separately)

※ DIN-Rail type controller, DX3000 and DSKM should install capacitor same as the motor rated output.

◉ General Specifications

Title	AC Speed Controller				
	DSA	DSKM	FX1000 (Will be discontinued)	FX3000	DX3000
Input Power	1Ø220~240V 50/60Hz	1Ø220~240V 50/60Hz 1Ø100~120V 50/60Hz	1Ø220~240V 50/60Hz	1Ø220~240V 50/60Hz	1Ø220~240V 50/60Hz
Output(W)	6W~180W	6W~180W	6W~180W	3W~180W	3W~180W
Display	–	–	4 DIGIT DISPLAY	4 DIGIT DISPLAY	4 DIGIT DISPLAY
Speed Control Range	50Hz : 90~1400r/min 60Hz : 90~1700r/min	50Hz : 90~1400r/min 60Hz : 90~1700r/min	50Hz : 90~1400r/min 60Hz : 90~1700r/min	50Hz : 90~1400r/min 60Hz : 90~1700r/min	50Hz : 90~1400r/min 60Hz : 90~1700r/min
Torque Control Range	–	–	–	0~100%	0~100%
Speed Setting	Internal Volume	Internal Volume, External Volume	Internal Volume	Internal Volume	DIGITAL, External Volume, DC Voltage, RS485 Communication
Multi-stage Speed Setting	–	External Volume	–	–	External Volume Internal Setting RS485 Communication
Operation Command	Power On/Off	Power On/Off	Power On/Off	Power On/Off I/O Command	I/O Command RS-485 Communication
Acceleration Time Setting	–	–	–	0.1~15sec	0.1~15sec
Gear Ratio Setting	–	–	–	O	O
Gain Setting(P, I)	–	–	–	O	O
Zero Clamp	–	–	–	–	O
Speed Command Offset	–	–	–	–	O
Communication	–	–	–	–	Serial Communication(RS485)

Combination Table

Model	W	Motor Model	Controller			
			FX3000	DX3000	DSA	DSKM
SPEED MOTOR	6W	6SD□□-6□	FX3000-006 S	DX3000	DSA-006	DSKM
		7SD□□-6□				
	10W	7SD□□-10□	FX3000-010 S		DSA-010	
	15W	7SD□□-15□	FX3000-015 S		DSA-015	
		8SD□□-15□				
	25W	8SD□□-25□	FX3000-025 S		DSA-025	
	40W	9SD□□-40□	FX3000-040 S		DSA-040	
	60W	9SD□□-60F2□	FX3000-060 S		DSA-060	
	90W	9SD□□-90F2□	FX3000-090 S		DSA-090	
	120W	9SD□□-120F2□	FX3000-120 S		DSA-120	
	180W	9SD□□-180F2□	FX3000-180 S		DSA-180	
TORQUE MOTOR	3W	6TD□□-3□	FX3000-003 T	DX3000	–	–
	6W	7TD□□-6□	FX3000-006 T			
	10W	8TD□□-10□	FX3000-010 T			
	20W	9TD□□-20F2□	FX3000-020 T			
	30W	9TD□□-30F2□	FX3000-030 T			
	40W	9TD□□-40F2□	FX3000-040 T			
	60W	9TD□□-60F2□	FX3000-060 T			

| CAUTION |

- About FX3000/ DSA controller, capacitor is built-in type and capacity is different according to the motor output.
  Please check the controller model name and motor output surely.

- About FX3000/ DX3000, initial control mode is speed control.
  Please change the parameter to torque control mode when using the controller with torque motor.

2018 DKM Controller

NEW 2018

◉ FX3000 Features and Advantages

FX3000
SPEED CONTROLLER
3000

STAND-BY   RUN

PUSH-SET

◉ DKM

- Comfort, Convenient Dial Dial Volume
- Digital Speed Display Digital Torque Display
- Easy, Simple Wiring Built−in Capacitor
- Screwless Connector
- Gear Ratio Setting
- Acceleration Time Setting
- Torque Control Function Standard Speed Control

NEW 2018

DX3000 Features and Advantages

RS485 Communication Standard Modbus

Digital Speed Display Digital Torque Display

Space Saving Unnecessary Relay

PLC I/O Control

Gear Ratio Setting

Acceleration Time Setting

Torque Control Function Standard Speed Control

DX3000

3000

MODE ∧ ∨ SET

DX3000   DS16HG
DKM
DIGITAL SPEED TORQUE CONTROLLER
INPUT : AC 200~240V 50/60Hz
            DC 24V
OUTPUT : AC 200~240V 50/60Hz

DKM Motor Co., Ltd.
MADE IN KOREA

T.G
COM   CN5
MAIN   CN2
SUB   CN4
FAN

CAP
L   CN1   CN3
N
FG

+
TX
-
GND
24V
GND
1
·
3
4
·
·
8
·
·
12

DKM

FX3000

| Simple Control and Intuitive Design |

FX3000
SPEED CONTROLLER

3000

STAND-BY   RUN

PUSH-SET

❶ Monitor

Display motor
and gearbox
RPM

**❷ STAND-BY/
RUN Switch**

Easy Control of
Motor Operation
and Stop

* Non-contact FWD/REV
   control from back side of
   FX3000 on STAND-BY condition

❸ Dial

Simple Change of
RPM and Parameter
Data

* Possible to control torque with
   torque motor(%)
   (Parameter "PR04" -> Choose "1")

⊙**DKM**
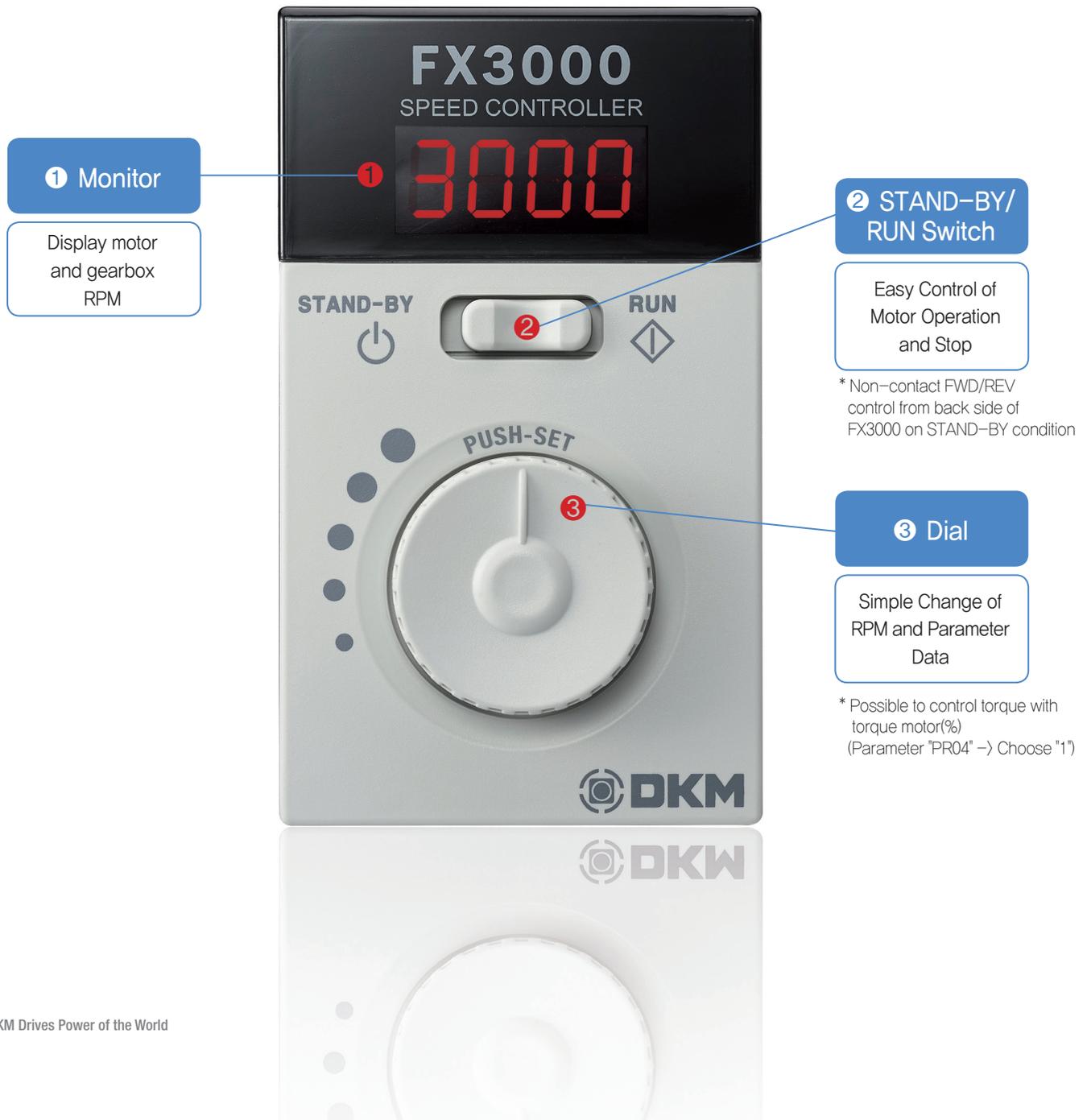
| Efficient and Convenient Operation |

❻ Installation Hole (2 places)

Installation of FX3000

❹ FWD/REV Switch

Change of Motor Rotation Direction

❺ Mode Button

Function of Parameter Change

FX3000
SPEED CONTROLLER

STAND-BY

RUN

PUSH-SET

Front Cover

FX3000

◉ Product Formation (Back Side)

| Easy Wiring and Maintenance |

CN3 : Motor Connector Terminal
(Connect motor connector)

CN3

CN1 : Power Terminal(AC power)
FWD/REV Input Signal Terminal
(Connect if operating with external signal)

CN1

CN2 : Motor Terminal
(Connect lead wire type motor or
other brand motor)

CN2
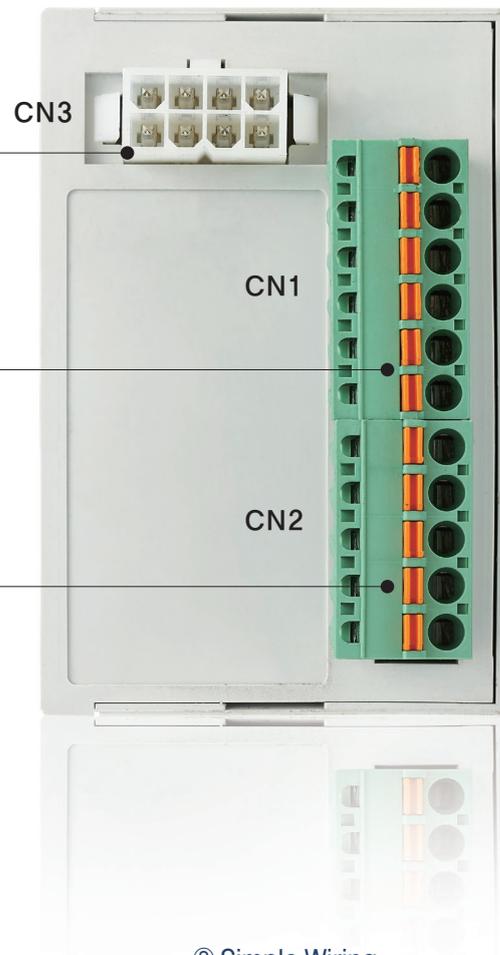
① Built-in Capacitor

Unnecessary
Capacitor Wiring

② Simple Connection

One-touch Connection
of Motor and Controller

③ Simple Wiring
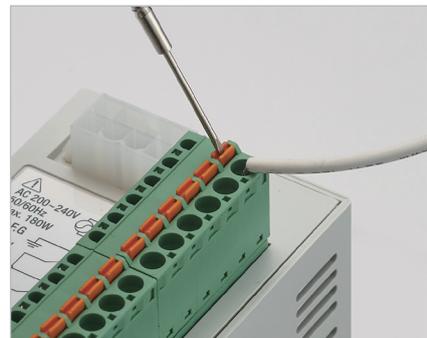
No Bolt, Screw Needed
Press orange button and insert lead wire

| Various Parameter Function and Response to Customer Demand |

■ Parameter Contents

Parameter		Function	Range	Standard Value	Remark
NO.	Display				
1	Pr01	Acceleration Time	0~15.0	0.1	Time(second) to reach the set speed
2	Pr02	Rotation Direction	0,1	0	0 : Clockwise 1 : Counterclockwise
3	Pr03	Gear Ratio	1~999	1.0	Input gear ratio
4	Pr04	Control Mode	0,1	0	0: Speed Control 1: Torque Control
5	Pr05	P Gain	0~255	100	
6	Pr06	I Gain	0~255	50	
7	Pr07	Parameter Reset	–	0	Reset when pressing and holding the SET button
SF	PrSF	Software Version	–	–	Display the software version

FX3000
SPEED CONTROLLER
3000

STAND-BY   RUN

PUSH-SET

DKM

* Speed Control P, I gain
–Parameter which determines responsibility of speed control.
–Vibration and hunting may occur if the value is too great.

■ Parameter Setting Procedure

3000
FWD
REV   STAND-BY   RUN   MODE

After wiring, set as follows.

① Input AC Power

0.

Display lights up
(Rotation speed)

② Select Parameter Mode

MODE Button
FWD
REV   STAND-BY   RUN   MODE

Enter into the parameter mode as pressing the MODE button while motor is stop condition.(STAND–BY)

Pr01

"Pr01" appear at display
(Parameter mode)

③ Parameter Data

Turn the dial and choose the parameter number which user wants to (Pr01~Pr07)

④ Change Parameter Data

ENTER

PUSH
(Briefly)

Press the dial(SET button) to enter the parameter data.

CHANGE

PUSH
Hold–2sec.

DATA flickers and switches to changeable status if pressing and holing the dial (SET button) during 2 sec.

CHANGE

CW/CCW
Roration

The data value is changed and the desired data value is set, When the dial is rotated by CW / CCW.

COMPLETE

PUSH
Hold–2sec.

Data stop blinking and finish the setting when pressing and holing the dial(SET button) for 2 sec.

⑤ Operation Mode

MODE Button
FWD
REV   STAND-BY   RUN   MODE

Press the MODE button to enter the operation mode.

0.

'0' on the display (Rotation speed) (operation mode)

FX3000

◎ Controller Coding System

| **FX3000** | **―** | **006** | | **S** |

Controller Model

OUTPUT
003: 3W **030:** 30W
006: 6W **040**: 40W
010: 10W **060**: 60W
015: 15W **090**: 90W
020: 20W **120**: 120W
025: 25W **180**: 180W

TYPE
S: Speed Motor
T: Torque Motor

*Initial setting mode is speed control. Please change to '1' (torque motor) on parameter 'Pr04'(control mode)
 if using torque motor. Regarding changing method, please refer to 'Parameter Setting Procedure'.
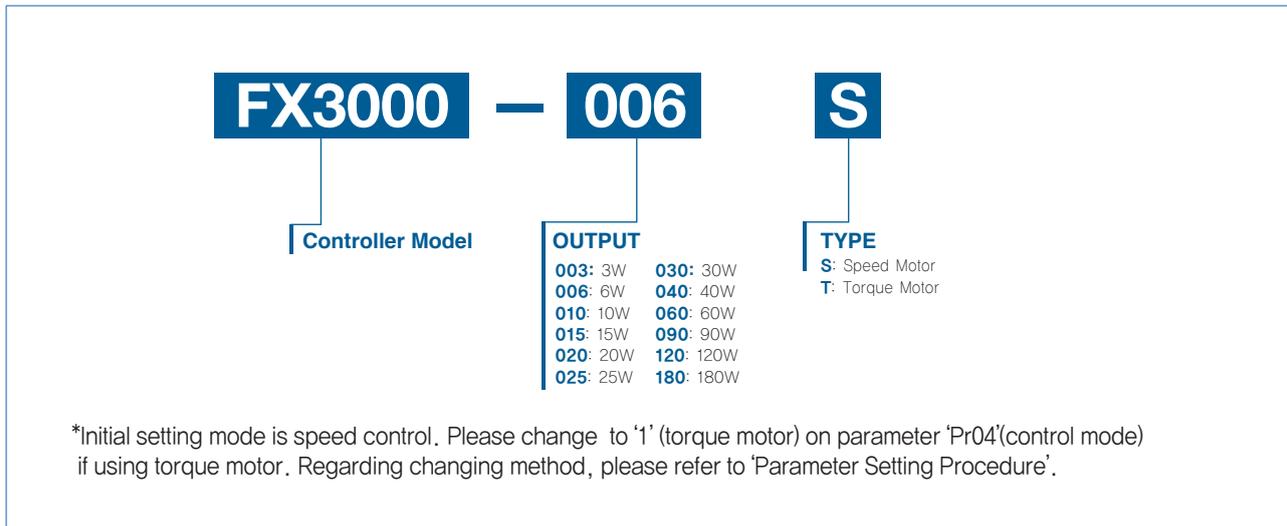
◎ Special Features

- Possible to control speed and torque.
- Possible to control the speed and torque of the motor simply by connecting motor and control unit with
connector and inputting the AC terminal to the power source.
- Display the current rotation speed(r/min) and torque(%).
- Possible to control speed and torque easily with the front panel dial.
- Possible to operate various functions by setting the parameter.

◎ General Specifications

Model Name	FX3000−□□	
Rated Voltage	1Ø AC 220~240V 50/60Hz ±10 %	
Allowable Current	Below 6 A	
Control Function	Speed Control, Torque Control	
Control System	Phase Control	
Setting Range	Speed Control	50Hz : 90~1400r/min 60Hz : 90~1700r/min
	Torque Control	0 ~ 100 %
Speed Setting	Setting by Volume	
Speed Variation	±5%(Standard Value)	
Motor Output	3W~180W	
Ambient Temperature	−10C° ~ 55C°	
Ambient Humidity	35 ~ 85%RH (Without condensation)	
Insulation Resistance	Over DC 500V 100MΩ (between power supply and external terminal)	
Dielectric Strength	AC 1500V 1minute (between power supply and external terminal)	

How to mount controller

Mounting Panel

BOLT(M4)

NUT
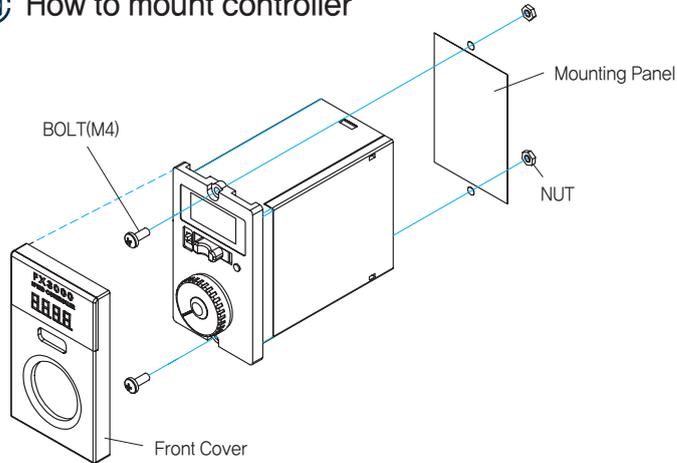
Front Cover

〈Mounting Panel Dimension〉

2-Ø4.5

80 +1.0/+0.5

90 ±0.2

52 +1.0/+0.5
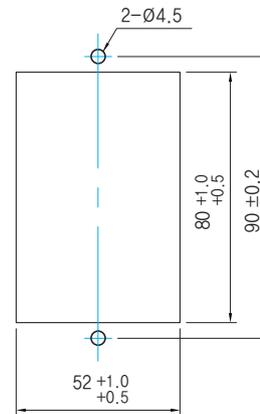
■ How to install

→ Process the hole on the mounting panel to attach the controller.
→ Fix the mounting panel and controller body with M4 bolt and nut.
→ Cover the front cover after controller installation, operation and parameter setting.

■ Caution

→ Install without gap between the controller and the mounting panel.
→ The screw head fixed with controller should be below 3mm. If over 3mm, front cover can't be amounted.

Below 3mm

M4 button-head cap screw
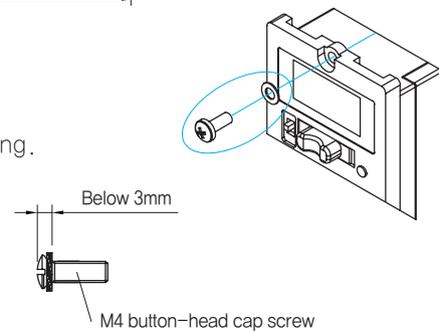
Each part name and Dimension

2-Ø4.5

90 ±0.2

Display
Stand-by/Run switch
Mode button
CW/CCW switch
Speed control and set button(dial)

〈Image without Front cover〉

(7.5) 11 95 (20)

(133.5)

CN3

CN1

CN2

80

102

52

60

CN1 : Power Terminal & CW/CCW signal
CN2 : Motor Terminal
CN3 : Motor Connector

※ Caution: Connect only CN2 or CN3 when connecting motor and controller.
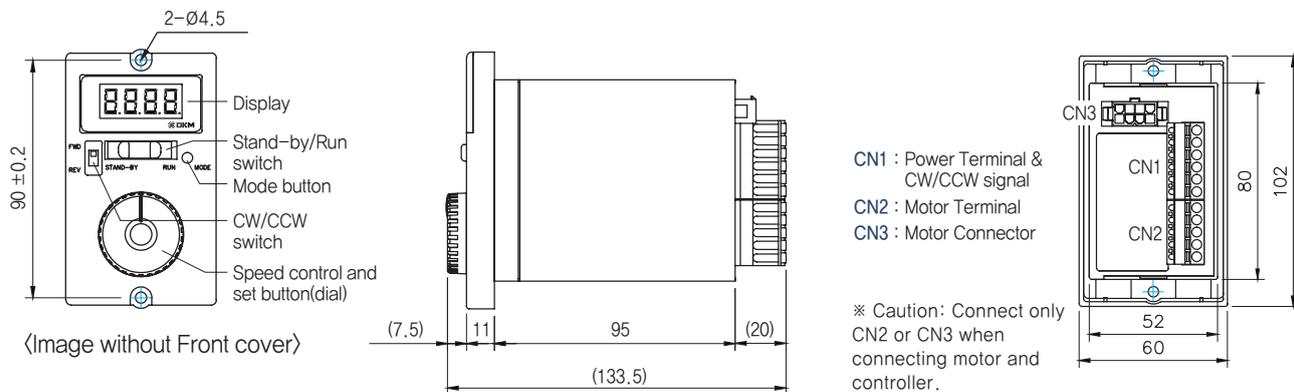
Connection

1. Controller Power Connection

CN1

① ② AC POWER INPUT
③ SW1
④
⑤
⑥ F.G

→ AC power: Connect #1 and #2 on terminal CN1.
→ Earth: Connect #3 on terminal CN1.

〈Back side of FX3000〉

SW1	Over AC 125V or 250V 5A
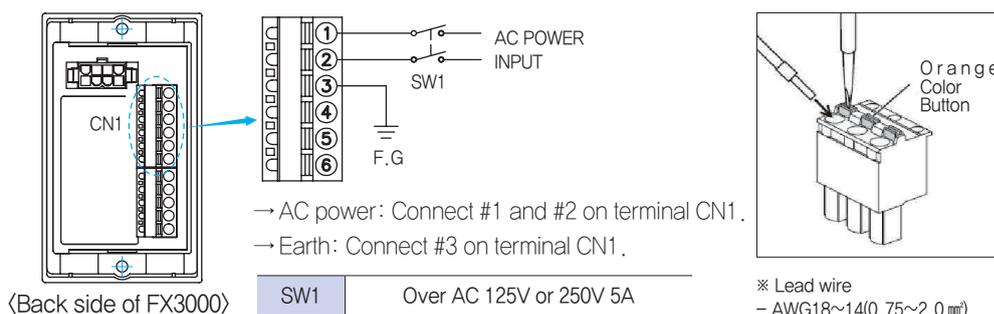
■ Lead wire connection

→ Input the lead wire while pressing the orange color button with screw driver.

Orange Color Button

※ Lead wire
- AWG18~14(0.75~2.0㎟)

FX3000

| Non-contact control function for external control |

SPEED CONTROLLER
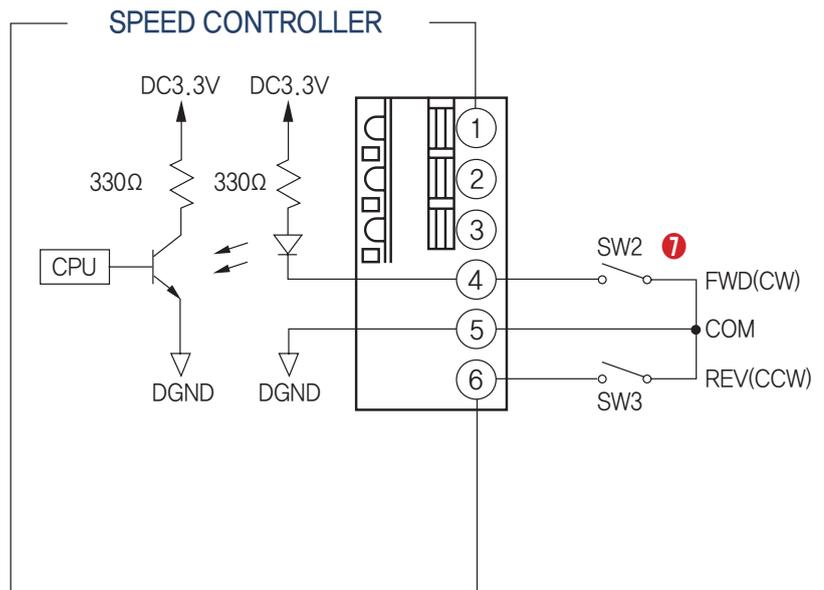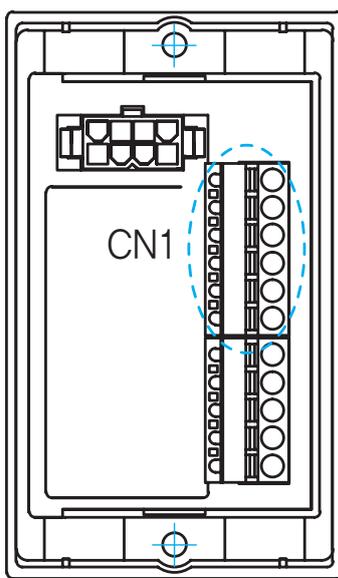
※ The above diagram shows the connection example when the motor is operated by relay or switch.

❼ Non-contact FWD/REV control

Operation by External Signal

→ In case of RUN/ STOP operation externally, please make sure that switch position should be on STAND−BY and connect #4, #5, #6 on terminal CN1.

→ Input Signal Terminal(CN1)

SW2	SW3	Motor Shaft
ON	OFF	Rotate to FWD
OFF	ON	Rotate to REV
OFF	OFF	STOP

※ Connect only for external RUN/STOP.
※ Front switch should be at STAND−BY position when operating by external signal.

How To Connect Other Brand Motor

O

CN3
CN1
CN2

CN1
①②③④⑤⑥
CN2
①②③④⑤

Black
Red
White MOTOR
Blue×2
T.G
FAN
Orange×2

S

CN3
CN1
CN2

CN1
①②③④⑤⑥
CN2
①②③④⑤

Black
White
Gray MOTOR
Red×2
T.G
FAN
Yellow×2

Red

G

CN3
CN1
CN2

CN1
①②③④⑤⑥
CN2
①②③④⑤

Black
Red
White MOTOR
Blue×2
T.G
FAN
Yellow×2
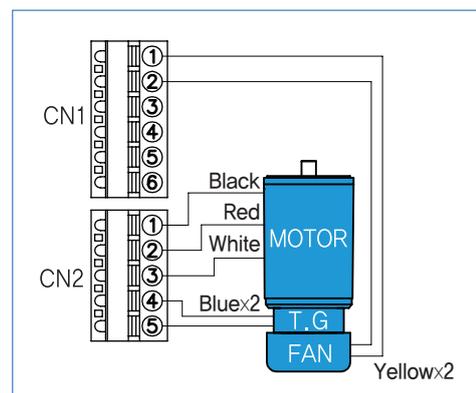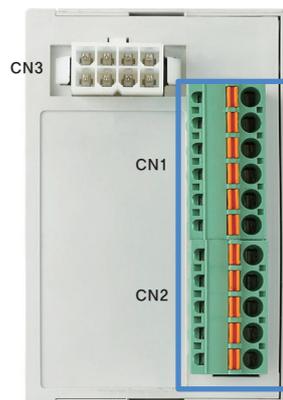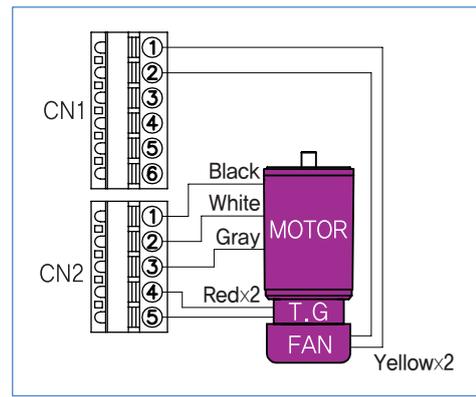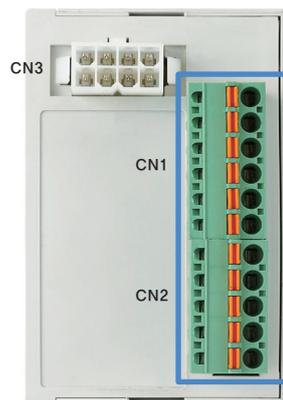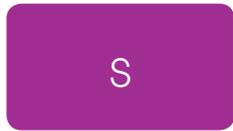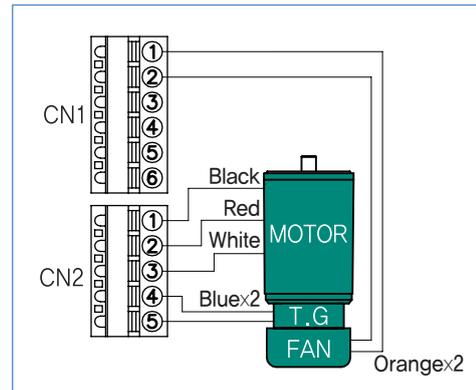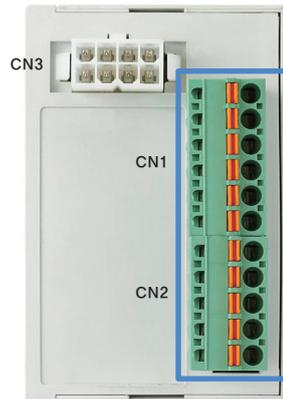
- Do not connect to CN3 when connecting other brand motor.
- According to the motor type, TG wire(gray*2) and powerful fan wire(black*2) may not be in.
- Please contact us before using other brand motor.

New
Digital Controller Launching!
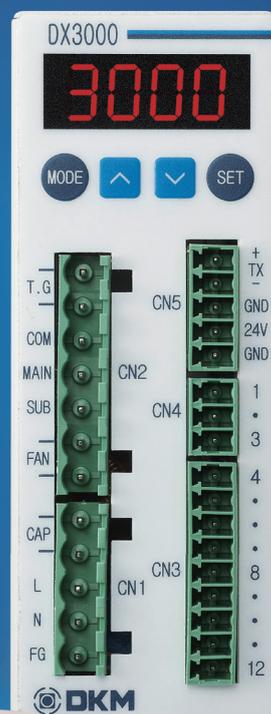
NEW

DX3000 Main Functions

- PLC I/O Command
- Easy Connection
- Four Stage Speed Setting
- RS485 Communication
- Unnecessary Relay
- Gear Ratio Setting
- Torque, Speed Motor Control

DKM motor & gearbox **MOTOR SERIES**

Product Formation (Front Side)

Monitor

Motor RPM
Gearbox RPM
Current Amount(A)
Digital Signal
Condition Display
Alarm Display

DX3000

3000

MODE ∧ ∨ SET

Operation Button

MODE : Function Change
∧ ∨ : Up&Down Movement
SET : Parameter Entry and Data Set

CN2 Connector

Motor Connection

CN1 Connector

Main Power Input
(1Ø AC220~240V 50/60hz)

T.G
COM
MAIN
SUB
FAN
CAP
L
N
FG

CN5
CN2
CN4
CN3
CN1

+
TX
−
GND
24V
GND
1
3
4
8
12

CN5 Connector

Control Power(DC24V)
Communication Command (RS−485)

CN4 Connector

External Analog
Command, Connection

CN3 Connector

Signal Connection

DKM

DX3000

◉ DX3000 Features and Advantages

▪ Easy, Simple Wiring and Maintenance

Easy installation and
detachment with connector
(Easy maintenance)

Simple installation
in DIN rail

▪ Space Saving

40mm

40mm x Controller Quantity
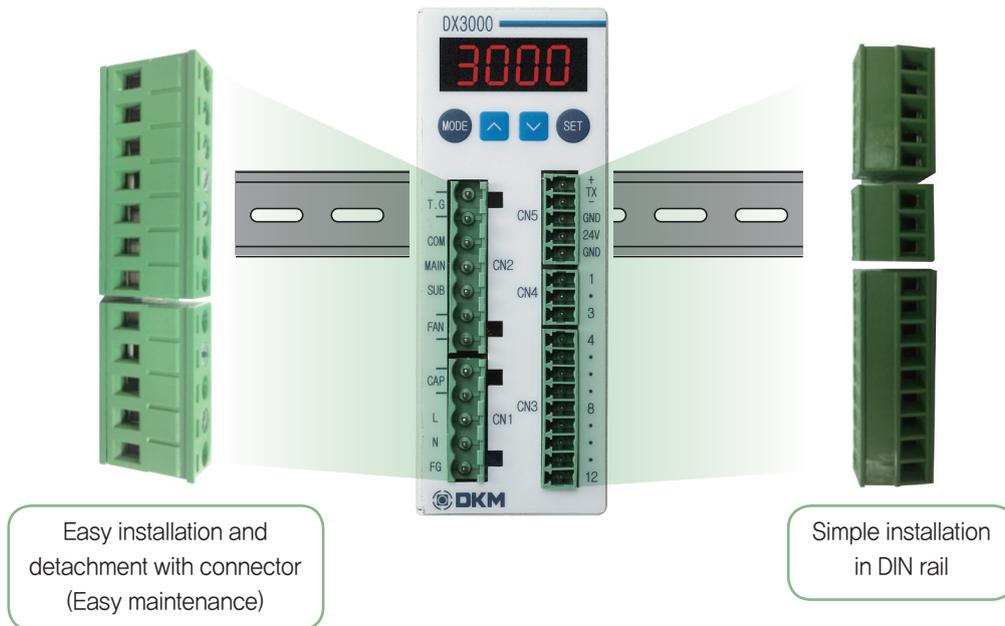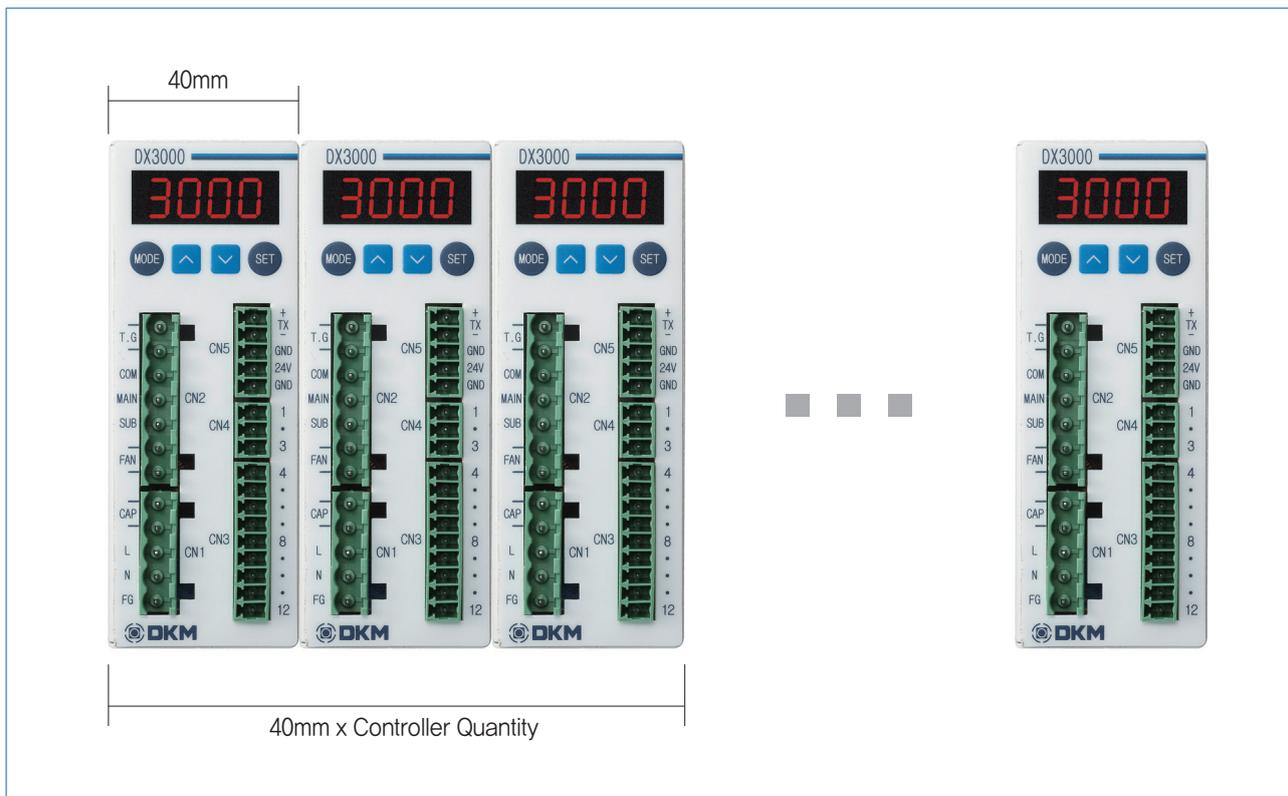
* *Possible to install closely in DIN rail (Controller Width 40mm)

■ Controller System

DX3000 Controller

Motor

Capacitor

Main Power Input
1Φ AC 220~240V
50/60Hz

DX3000

3000

MODE | SET

T.G
COM
MAIN
SUB
FAN
CAP
L
N
FG

CN2

CN1

CN5
CN4
CN3

+
TX
−
GND
24V
GND
1
·
3
4
·
·
·
·
8
·
·
12

PC/PLC

RS 485
Communication

Control Power DC24V
(Not included in the product)

External Volume(Option)
(Not included in the product)

I/O
Command

PLC

TOUCH
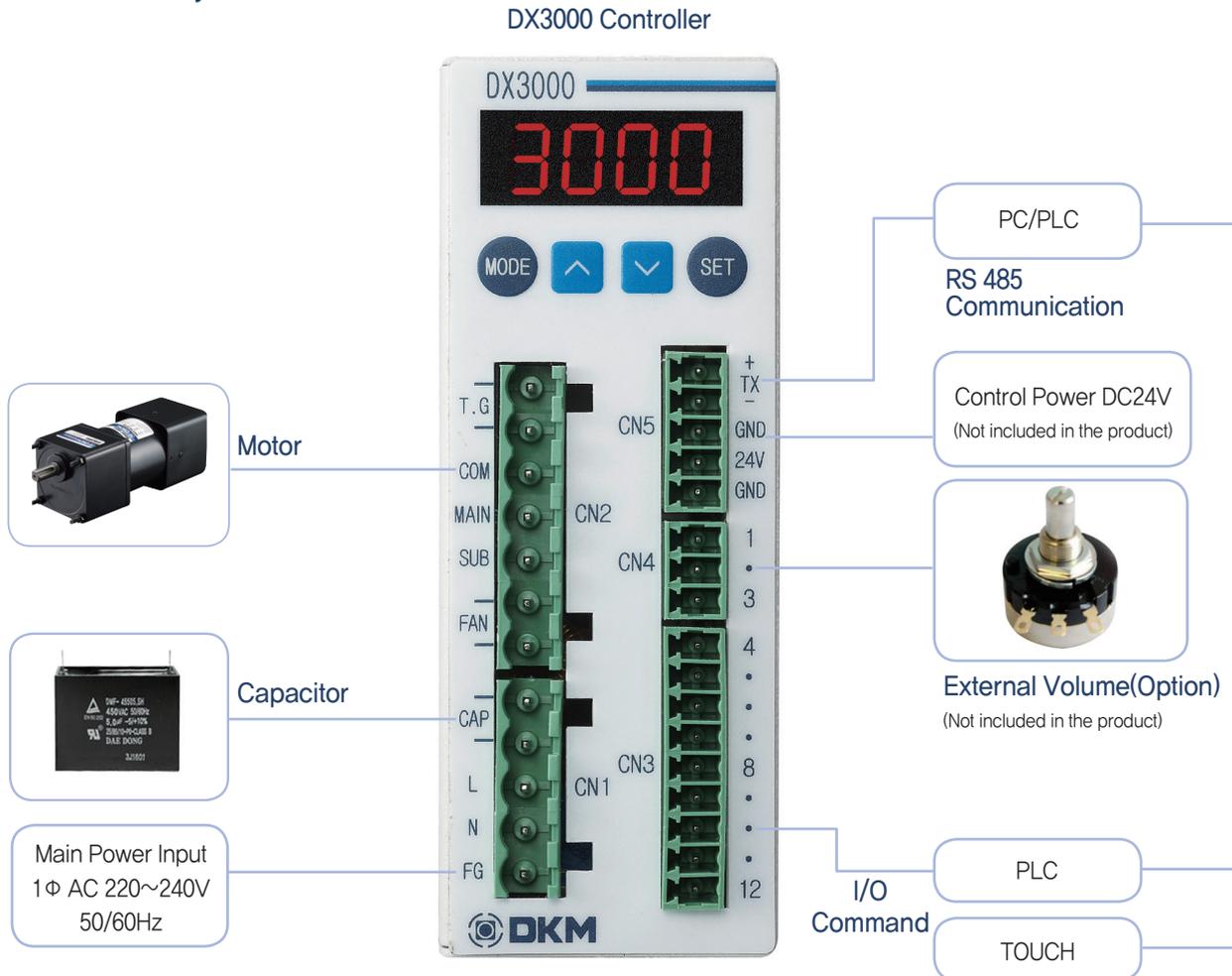
■ Simplification of peripheral devices

RS 485 Communication System

Unnecessary Relay
- Security of space inside of panel
- Simple wiring and reducing cost
- Reduction of labor force
- Easy maintenance

*RS485 communication control system with PLC and touch screen

DX3000

◉ Parameter Contents

NO.	Function	Range	Standard value	Note
1	Max. Speed	1460/1760	–	r/min
3	Speed Limit	50~1760	1760	r/min
4	Acceleration Time	0~15.0	0.1	Second (S)
5	Rotation Direction	0~1	0	
6	Gear Ratio	1~250	1	
7	Control Mode	0~1	0	0 : Speed Control 1 : Torque Control
8	Zero Clamp	0~5.0	0.0	Voltage (V)
9	Speed Command Offset	0~5.0	0	Voltage (V)
10	Abnormal Signal Output	0~1	0	
13	Speed Control P Gain	0~255	100	
14	Speed Control I Gain	0~255	50	
20	Communication ID Setting	1~254	1	
21	IO Input Setting	0~1	0	0 : CN3 IO Input 1 : RS485 Input
22	Speed Input Setting	0~1	0	0 : CN4 Potentiometer Input 1 : RS485 Speed Command input
30	Internal Speed Setting 1	0~Max. Speed	500	r/min
31	Internal Speed Setting 2	0~Max. Speed	1000	r/min
32	Internal Speed Setting 3	0~Max. Speed	1500	r/min
33	Internal Torque Setting 1	0 ~ 100	10	%
34	Internal Torque Setting 2	0 ~ 100	20	%
35	Internal Torque Setting 3	0 ~ 100	50	%

■ No.1 Max. Speed

· Function to check the max. speed – setting impossible
· Max. speed changes automatically according to input power's frequency(50/60Hz)
· 50Hz : 1460 r/min, 60Hz : 1760 r/min
· When inputting speed command voltage(VR), find maximum RPM operated at maximum input voltage (external: 5V, internal: 100)

■ No.3 Speed Limit

· Set when user wants to limit motor speed
· Set value is only applied when set value is lower than max. speed of motor
· The speed limit is same as max. speed if the speed limit is hgiher than max. speed
· Regarding torque motor, it's possible to attach T.G(Customized order)

■ No.4 Acceleration Time

· Set the time taken to reach the parameter No.1
· Accelerate at set time if controller acceleration VR is 100%
· Acceleration time will be faster if it is closer to 0 in parameter
· Deceleration time cannot be set

■ No.5 Rotation Direction

· Change motor's rotation direction
ex) Parameter value is 0: Rotate from FWD signal input to CW
Parameter value is 1: Rotate from FWD signal input to CCW

■ No. 6 Gear Ratio

· Input motor gear ratio

· Display RPM from gear output shaft (final output shaft)

■ No.7 Control Mode

· Select motor speed or torque control

0: Operate with speed control mode

1: Operate with torque control mode

No.8 Zero Clamp

· Zero Clamp is set from speed command voltage.

If speed command voltage is in range of zero clamp's set value, motor doesn't operate and if over range of zero clamp's set value, motor operates.


Max RPM

MaxRPM/(5V/1V)   RPM

Zero Clamp
EX)1V Setting   VOLT   5V
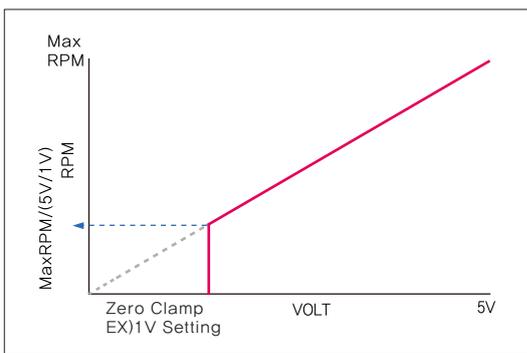
ex) When zero clamp is set to 1V, it recognized to 0 RPM before 1V input. When the voltage is applied to more than 1V,

$$RPM = MaxRPM \times \frac{x}{5V}$$

*x = Speed Command Voltage

■ No.9 Speed command offset

· It is operated more than offset value set from speed command voltage

Max RPM

RPM

Speed Command Offset
EX)1V Setting   VOLT   5V
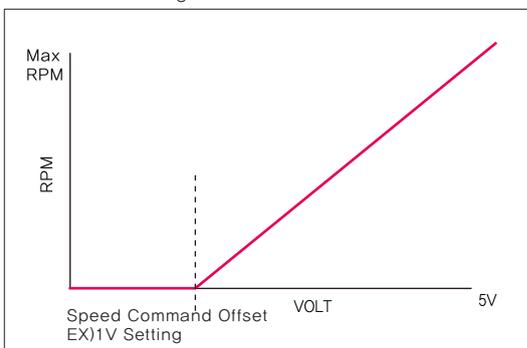
$$RPM = MaxRPM \times \frac{x - 1V}{5V - 1V}$$

*x = Speed Command Voltage

* x−1V= 0 is minimum value

■ No.10 abnormal Signal contact level

· Set output contacts of alarm signal when the alarm occurs in the controller

Setting value 0 : Alarm signal B contact output
(normality: Com and short, Alarm: Com and Open)

Setting value 1 : Alarm signal A contact output
(normality: Com and Open, Alarm: Com and Short)

■ No.13 Speed control P gain

· Parameter which determines responsibility of speed control

· Vibration and hunting occurs if value is too great

■ No.14 Speed control I gain

· Parameter which determines responsibility of speed control

· Vibration and hunting occurs if value is too great

■ No.20 Communication ID setting

· Select the controller's dialing code at communication control

· Choose the dialing code among 1 ~ 254

· Be careful not to overlap ID if using multiple communications

■ No.21 IO Input Setting

· 0 : IO CN3 switch input control

· 1 : IO input control of RS485 communication

■ No.22 Speed Input Setting

· 0 : IO CN4 variable resistance input control

· 1 : Speed input control of RS485 communication

■ No. 30~32 Internal Speed 1~3

– Operate at speed mode (parameter No.7 : 0)

– Input internal speed setting value in r/min

– If the internal/ external input switch is set to internal input, operation is applied as follows:

Switch 1	Switch 2	Operation
OFF	OFF	External variable resistance speed
ON	OFF	Parameter No.30(Internal speed 1)
OFF	ON	Parameter No.31(Internal speed 2)
ON	ON	Parameter No.32(Internal speed 3)

■ No. 33~35 Internal Torque 1~3

– Operate at torque mode (parameter No.7 : 1)

– Input internal torque setting value in %

– If the internal/ external input switch is set to internal input, operation is applied as follows:

| Switch 1	Switch 2	Operation
OFF	OFF	External variable resistance torque
ON	OFF	Parameter No.33(Internal torque 1)
OFF	ON	Parameter No.34(Internal torque 2)
ON	ON	Parameter No.35(Internal torque 3)

DX3000

RS 485 Communication

■ Communication Mode

→ MODBUS RTU Slave Mode

■ Register Support

→ 0x03 (Read Holding Registers)
→ 0x04 (Read Input Registers)
→ 0x06 (Write Single Registers)
→ 0x03 (Read Holding Registers)

■ Communication Connection Diagram

DX3000		Controller & PC	
RS485		**RS485**	
RS485 TXD + MODBUS	1	1	RS485 TXD + MODBUS
RS485 TXD − MODBUS	2	2	RS485 TXD − MODBUS
GND	3	3	GND
	4		
	5		
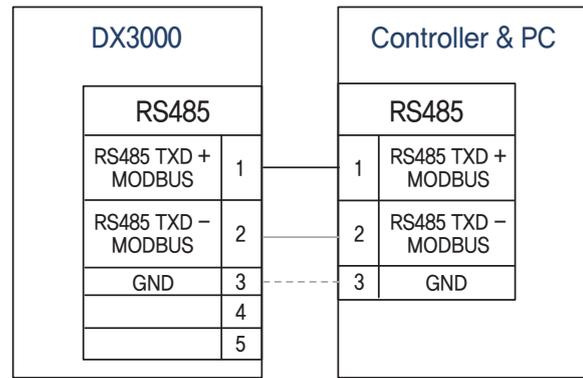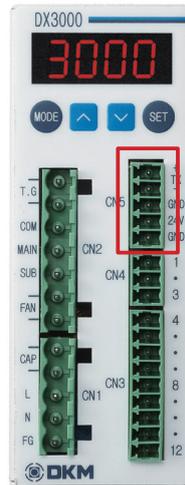
− Please download controller communication manual at our website, www.dkmmotor.com

General Specifications

Model		DX3000
General Specifications	Power supply — Motor Power	AC 220~240V 50Hz / 60Hz ±10%
	Power supply — Control Power	DC 24V ±10%
	Rated Current [A]	4
	Max. Current [A]	6
	Control Function	Speed Control, Torque Control
	Control mode	Phase−Duty Control
	Dimension [mm]	40(W) × 104(H) × 65(D)
	Speed Control Range	50Hz : 100 ~ 1460 r/min 60Hz : 100 ~ 1760 r/min
	Torque Control Range	0 ~ 100% (Maximum Torque)
	Feedback Sensor	Tacho − 12 ppr
	Ambient Temperature	−10 ℃ ~ 55 ℃
Input & Output specifications	Sequence Input	Forward, Reverse, Alarm reset, Velocity select
	Sequence Output	Speed pulse out, Alarm out
Built−in functions	Protection Function	Parameter error, AC low voltage alarm, EEPROM
	Condition Mark	4 Digit Display (7−Segment)
Communication Mode		Serial Communication (RS485 − MODBUS RTU)

Dimension

◉ Controller Connection Diagram

CN2
1	TG(Grey)
2	TG(Grey)
3	COM(White)
4	MAIN(Blue)
5	SUB(Red)
6	FAN(Black)
7	FAN(Black)

Motor
T.G
FAN

CN1
1	CAP
2	CAP
3	L(AC)
4	N(AC)
5	FG

Capacitor

CN5
RS 485 TXD+ MODBUS	1
RS 485 TXD– MODBUS	2
GND	3
DC 24V	4
GND	5

DC24V

CN4
VCMD(5V)	1
VCMD(REF)	2
VCMD(GND)	3

Over 10KΩ 1W

CN3
FWD	1
REV	2
AL RST	3
VCMD SEL1	4
VCMD SEL2	5
SIG GND	6
FLT OUT	7
SPD OUT	8
OUT COM	9
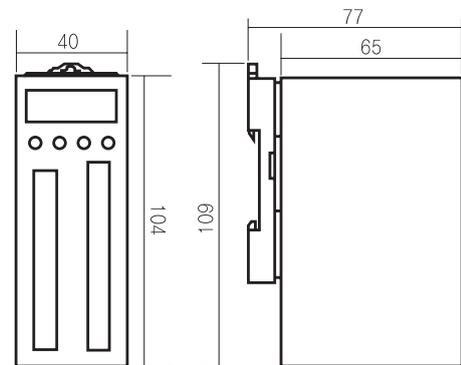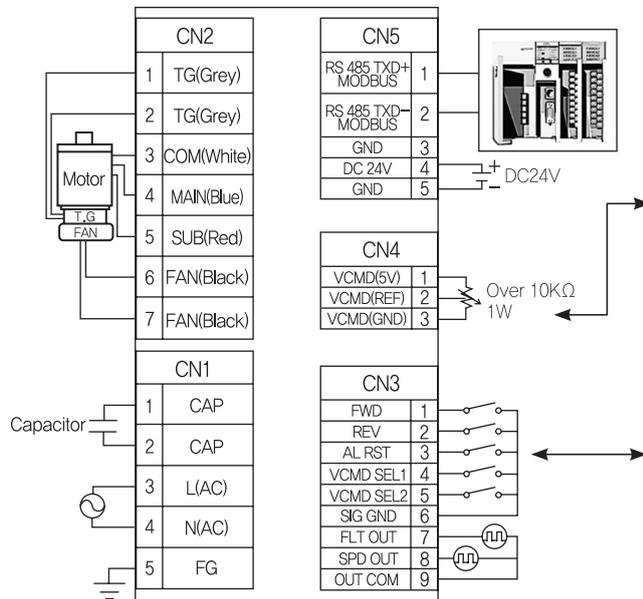
◉ Function of CN4 Connector

NO.	Name	Description	Remark
1	VCMD V	External speed command potentiometer + voltage output	5V Output
2	VCMD Vref	External speed directive value input	Voltage input
3	VCMD GND	Connect to external speed directive GND	V GND

◉ Function of CN3 Connector

NO.	Name	Description	Remark
1	FORWARD RUN	Input forward switch	Input Signal
2	REVERSE RUN	Input reverse switch	Input Signal
3	ALARM RESET	Input alarm reset switch	Input Signal
4	SPEED SELECT1	Input internal/ external input select switch * Select operation mode with parameter No.7 * Internal Speed: Parameter No.30~No.32	Input Signal
5	SPEED SELECT2	* External Speed: Input external variable resistance * Internal Torque: Parameter No.33~No.35 * External Torque: Input external variable resistance	
6	SIGNAL COMMON	Motor switch input COMMON	COMMON
7	FAULT OUT	Output controller status * Change output contact (A or B) according to parameter No.10	Input Signal
8	SPEED OUT	Motor operating speed output	Input Signal
9	OUT COMMON	Output Contact Common	COMMON

DX3000

I/O Signal Circuit

NPN(Sink) PNP(Source)

Output Circuit

DC 3.3V

200Ω

SIGNAL

R

DC 24V

COMMON

CPU
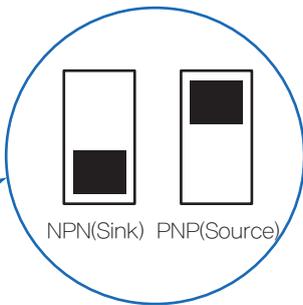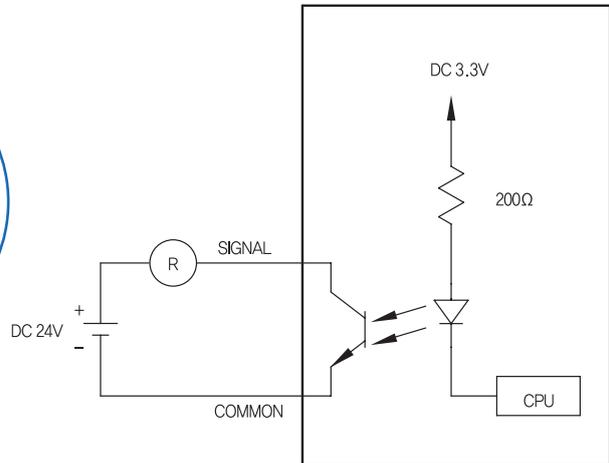
- Input COMMON(NPN, PNP) is set with the bottom switch of controller internal circuit board
- Initial Setting : NPN

Input Circuit
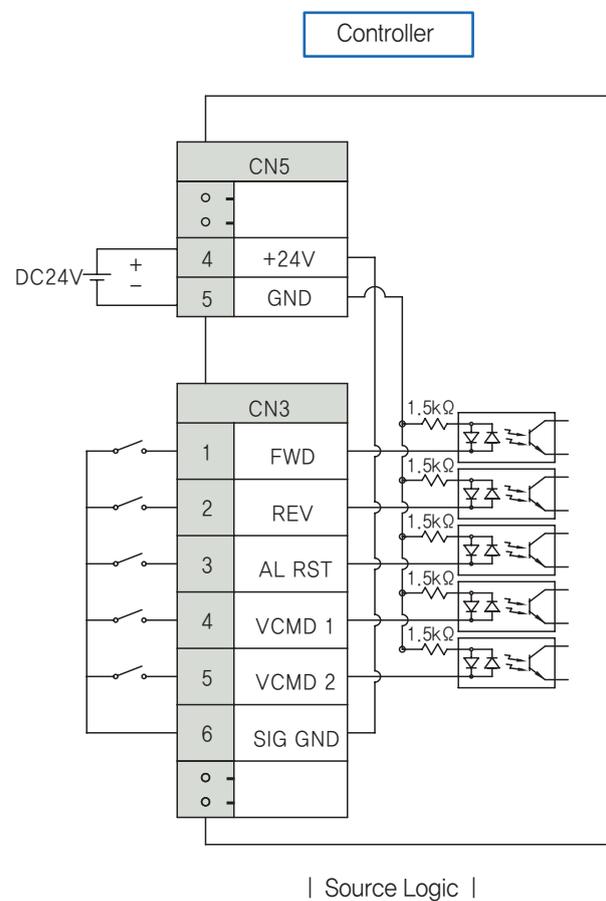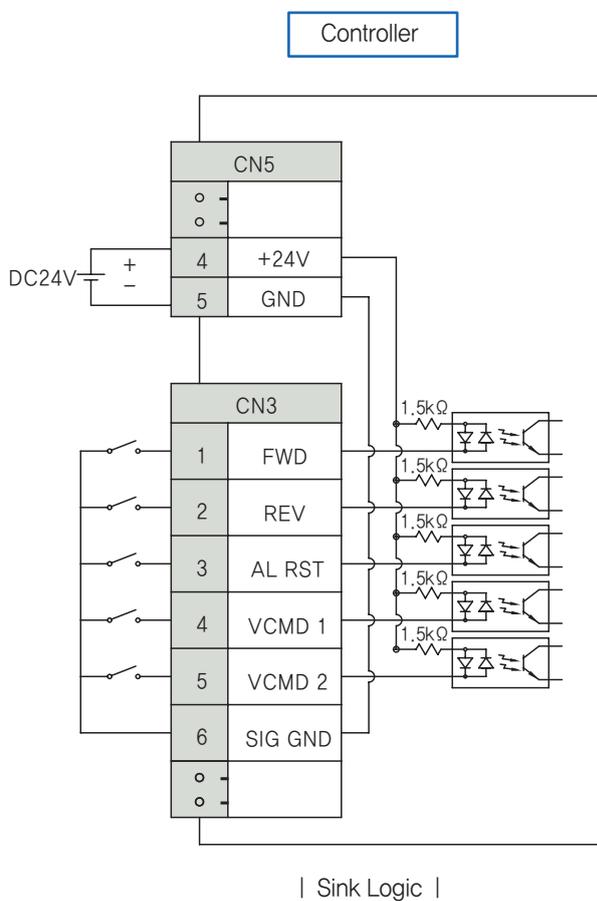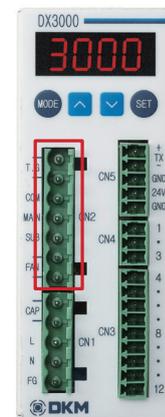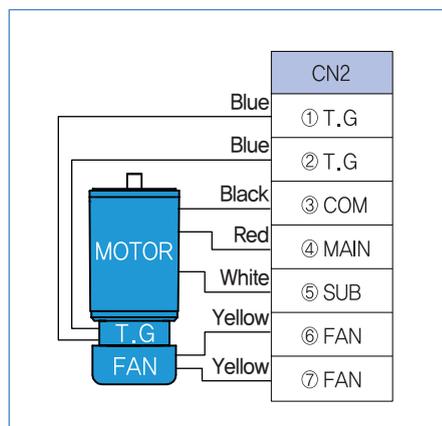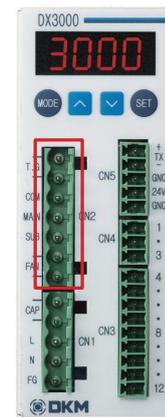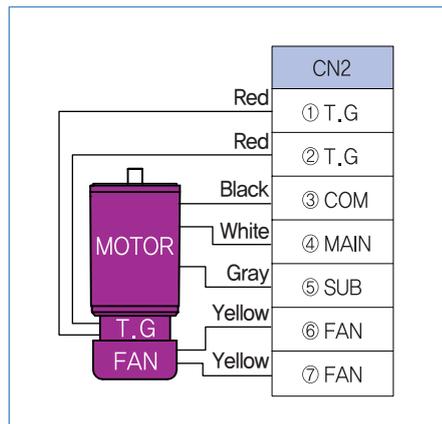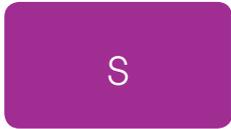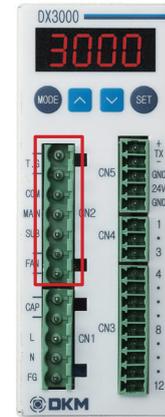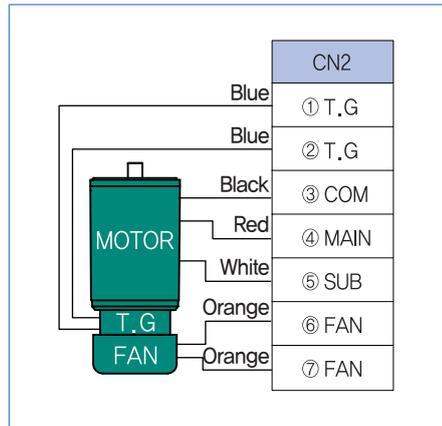
Controller

CN5	
4	+24V
5	GND

DC24V

CN3		
1	FWD	1.5kΩ
2	REV	1.5kΩ
3	AL RST	1.5kΩ
4	VCMD 1	1.5kΩ
5	VCMD 2	1.5kΩ
6	SIG GND	

| Sink Logic |

Controller

CN5	
4	+24V
5	GND

DC24V

CN3		
1	FWD	1.5kΩ
2	REV	1.5kΩ
3	AL RST	1.5kΩ
4	VCMD 1	1.5kΩ
5	VCMD 2	
6	SIG GND	

| Source Logic |

How To Connect Other Brand Motor

O

CN2	
Blue	① T.G
Blue	② T.G
Black	③ COM
Red	④ MAIN
White	⑤ SUB
Orange	⑥ FAN
Orange	⑦ FAN

MOTOR / T.G / FAN

S

CN2	
Red	① T.G
Red	② T.G
Black	③ COM
White	④ MAIN
Gray	⑤ SUB
Yellow	⑥ FAN
Yellow	⑦ FAN

MOTOR / T.G / FAN

G

CN2	
Blue	① T.G
Blue	② T.G
Black	③ COM
Red	④ MAIN
White	⑤ SUB
Yellow	⑥ FAN
Yellow	⑦ FAN

MOTOR / T.G / FAN

- According to the motor type, TG wire(gray*2) and powerful fan wire(black*2) may not be in.
- Please contact us before using other brand motor.

DSA Controller

■ Easy Connection
Operation is possible just by connecting the control unit into power supply after connecting the motor and control unit together using the connector.

■ Easy Operation
The speed can be set easily with the potentiometer on the front panel of the control unit.

■ Capacitor Built-in
A capacitor for the speed control circuit motor and the speed setting device are assembled in the control unit.

■ Possible to connect with other brand motor
* Other brand motor can be connected to the controller.
Please contact us before use.

◎ System Configuration

Extension Cable

DSA
Controller

AC
Power
Supply
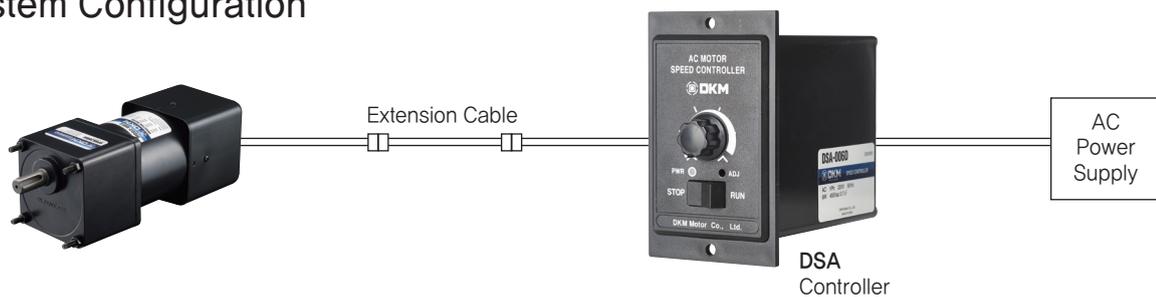
◎ DSA Specifications

Model	DSA
Rated volltage	AC 220~240V 50/60Hz
Ambient voltage range	±10%
Allowable current	Below 5A
Control	Phase control
Range of speed control	50Hz : 90 ~ 1400 r/min
	60Hz : 90 ~ 1700 r/min
Speed control	Operate with volume
Changing rate of speed	±5%(Standard)
Output	6W~180W
Ambient temperature	−10℃ ~ 40℃
Ambient humidity	35 ~ 85%RH
Insulation resistance	Over 100MΩ(Base on 500VDC mega)
Dielectric strength	1500VAC 50/60 for 1minute

Dimensions

Connection Diagram
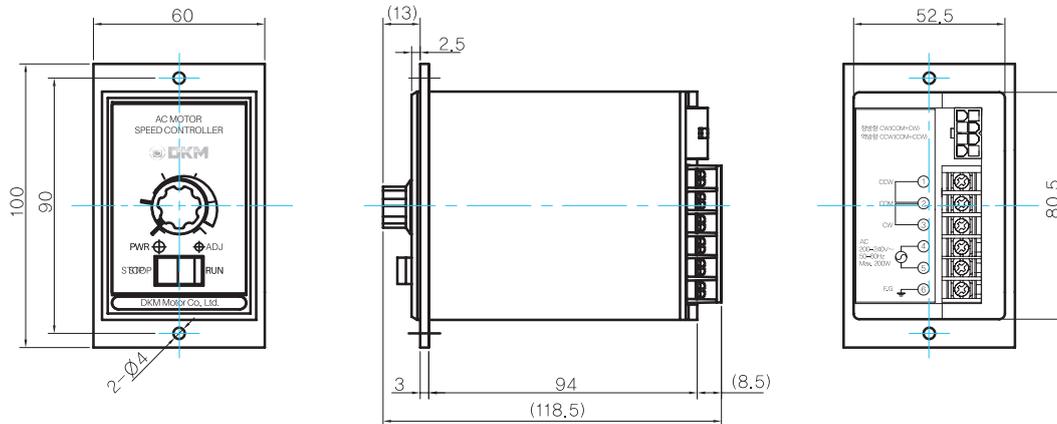
CW DIRECTION	CCW DIRECTION
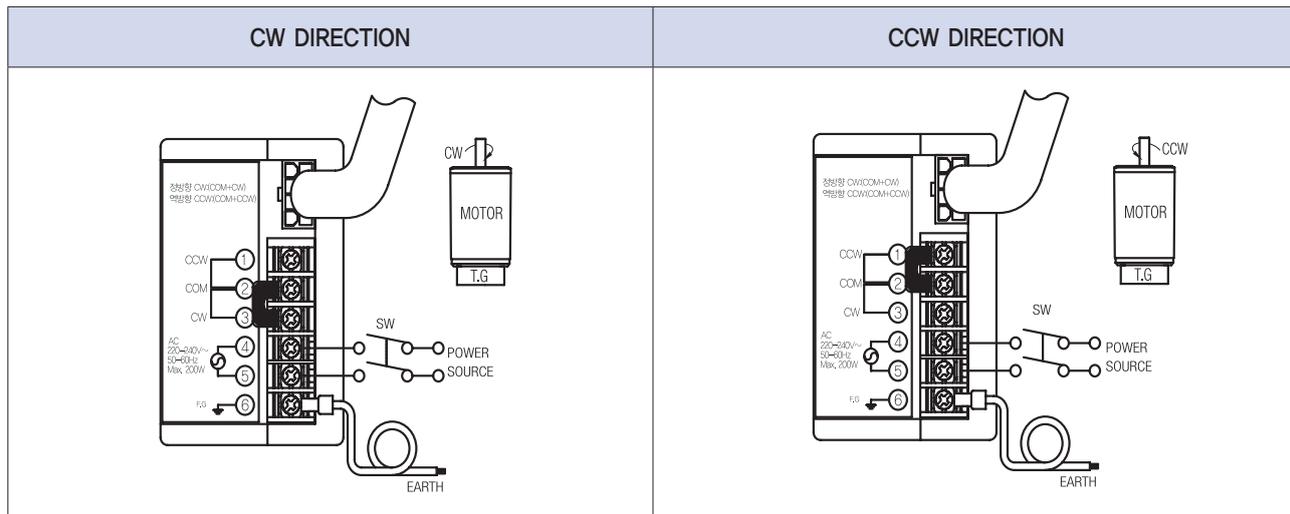
1) Connect control unit and lead wire connector of motor.
2) Press stop button before connecting AC power to ④, ⑤ terminals.
3) When AC power input, LED lights on.
4) CW Direction – Connect ② COM, ③ CW
    CCW Direction – Connect ② COM, ① CCW
5) Motor RPM is getting faster if speed volume turns to CW and Motor RPM is getting slower if speed volume turns to CCW.
6) If operate 'RUN/STOP' switch to STOP, motor is stopped.
    Make sure this switch is not same as power ON/OFF.
    (When motor has to stop for a long time, extra power switch should be installed.)

DSKM Controller

■ **Compact Speed Control Pack**

It is compact speed control pack with small plug-in (8-pin) type.

■ **Easy Operation**

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

■ **External Volume Attachable**

The speed can be set easily with the external potentiometer
which could be separated from controller body.

■ **Various Functions**

Bi-directional operation / Variable speed setting /
Electric Brake / Multi-stage speed setting

◎ System Configuration

Extension Cable

AC
Power
Supply

DSKM
Controller

External Volume

Capacitor
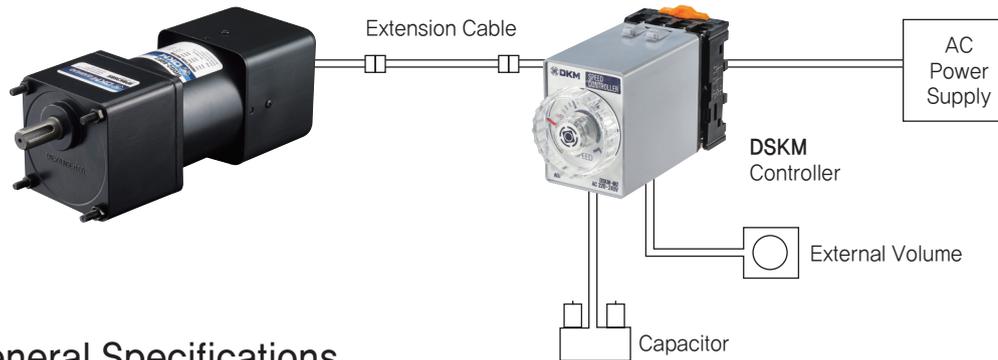
◎ General Specifications

| 형 명	DSKM-M1	DSKM-M2
Rated voltage	AC 100~120V 50/60Hz	AC 220~240V 50/60Hz
Voltage regulation	±10%	
Power consuption	Below 4 VA	
Control mode	Phase Control	
Operating range	50Hz: 90 ~ 1400 r/min	
	60Hz: 90 ~ 1700 r/min	
Speed setting device	Internal volume (External volume usable)	
Electric brake	Possible to brake for certain period by electric brake	
Eletric braking time	0.5second (standard value)	
Ambient temperature	−10℃ ~ 55℃	
Ambient humidity	35 ~ 85%RH	
Insulation resistance	Over DC 500V 100MΩ (between power supply and external terminal)	
Dieletric strength	AC 1500V for 1 minute (between the windings and the frame)	

Dimensions
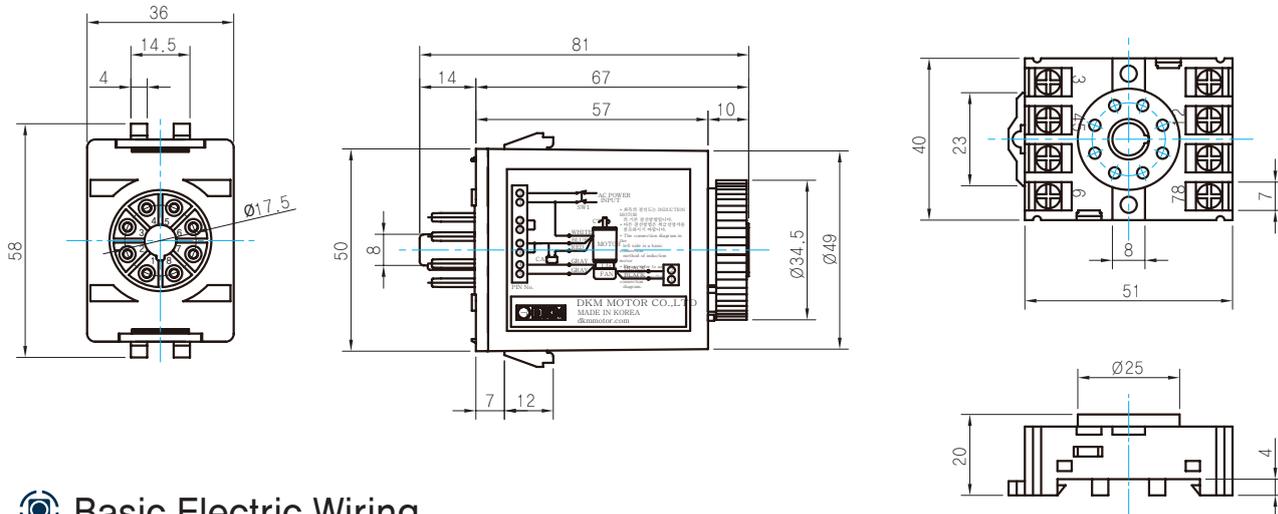
Basic Electric Wiring

## | Uni-directioinal operation + Variable speed |
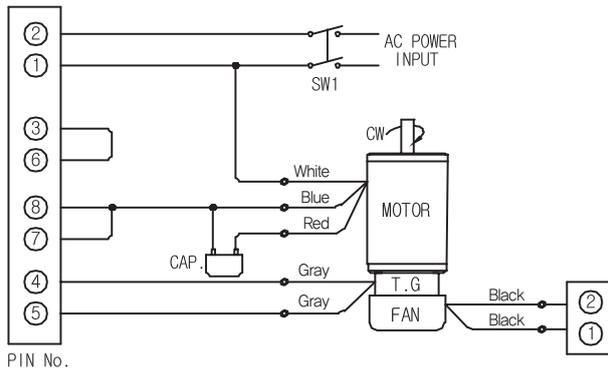
PIN No.

• Exchange wire blue and red of the motor for CCW direction.

	RUN	STOP
SW1	ON	OFF
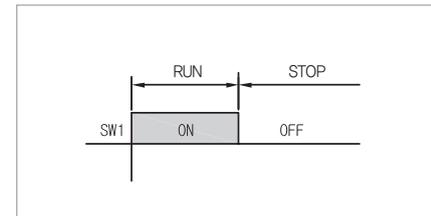
SW1	AC 125V or 250V 5A

| Bi-directional operation + Variable speed |

PIN No

	FORWARD	STOP	REVERSE
SW1	ON	OFF	ON
SW2	CW		CCW
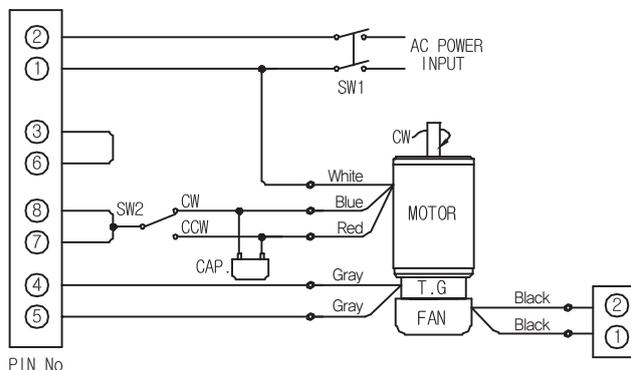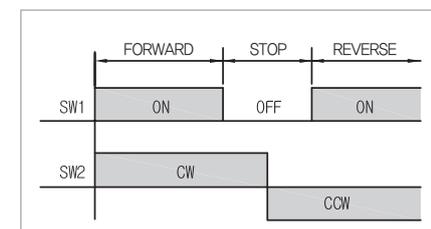
SW1 SW3	AC 125V or 250V MIN. 5A

• Set stop period and switch SW2 after the motor completely stop.

- DSKM controller has a variety of wiring methods.
  Please visit our website or refer to the DSKM manual for electric brake function, external speed setting and multi-step speed setting.