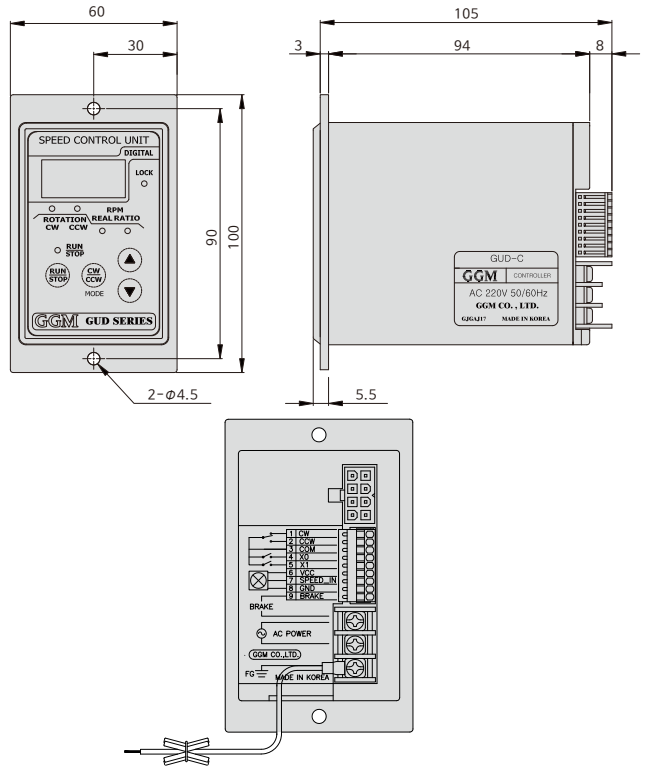
# SPEED CONTROL UNIT - GUD


Diagram and general contents

## Appearance of Products




## Specification

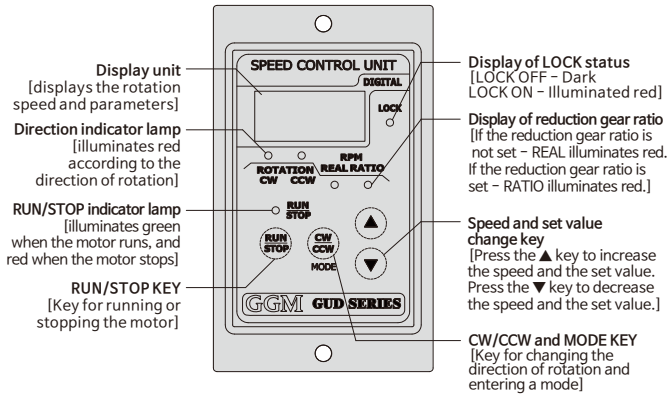
| Characteristics \ Model | GUD-U-□ | GUD-C-□ |
|---|---|---|
| Rated voltage and power frequency | Single-phase 100V~115V 50/60Hz | Single-phase 220V~240V 50/60Hz |
| Operating voltage range | ±10% (in comparison to the rated voltage) | |
| Applied motor output | INDUCTION : 6 ~ 180W<br>REVERSIBLE : 6 ~ 180W | |
| Speed control range | 60Hz : 90~1730rpm<br>50Hz : 90~1430rpm | |
| Speed setting | Increase or decrease by 10 due to input setting | |
| Operating temperature range | -10~40℃ | |
| Storage temperature range | -20~60℃ | |
| Operating humidity range | less than 85% (in an environment with no dew condensation) | |
| Protection level | IP20 | |

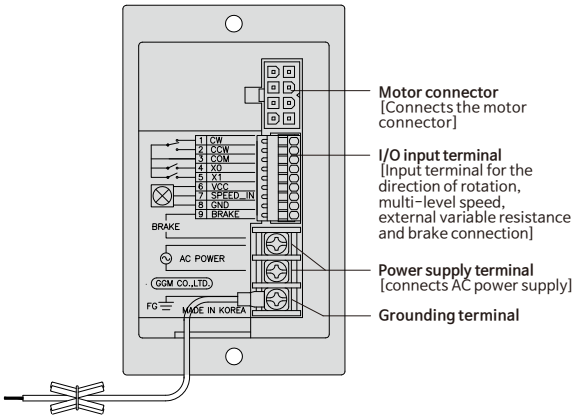
A number indicating the output of the motor is displayed where the □ is placed in the model name.

## Product Features

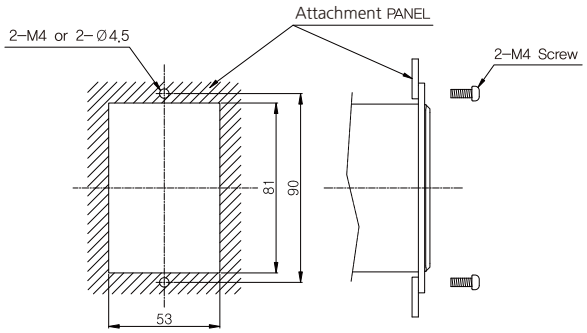
① Indicates the current rotation speed (r/min).
② The motor speed can be controlled simply by connecting the motor and the control unit using the dedicated connector, and connecting the AC terminal to the power source.
③ You can use the CW/CCW key at the front side and the external input port at the rear side to change the direction between forward and backward.
④ Multi-level speed control can be achieved using the input port. (4 levels)
⑤ You can control the speed simply by using the front switch.
- Range of variable speed -
50Hz : 90 ~ 1430 r/min, 60Hz : 90~1730 r/min
⑥ Various operation modes are available through the parameter setting.
- Reduction gear ratio, acceleration/deceleration time, Lock, brake function, speed change unit
⑦ The external volume can be used.

## Names and functions of each part




## Panel Processing

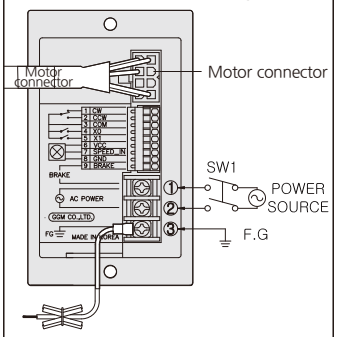


# SPEED CONTROL UNIT



## How to Use

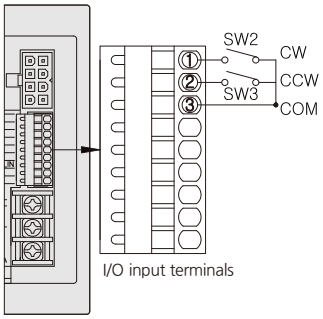
### ▶ Power and motor wiring




1) Connect the motor connector to the motor connector terminal at the back of the controller.
2) Connect the AC power to power supply terminals No. ① and No. ②.
3) Connects grounding to No. ③.

| SWITCH | SWITCH contact capacity |
|---|---|
| SW1 | AC 125V or 250V 5A or higher |

### ▶ Forward and backward signal wiring

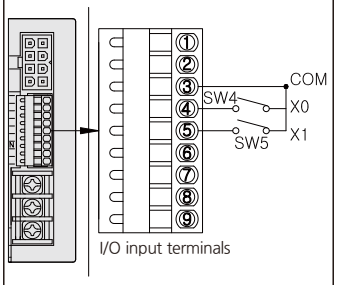



You can operate forward and backward motor rotation by connecting to I/O input terminals No. ①, No. ② and No.

| SW2 | SW3 | MOTOR shaft rotation |
|---|---|---|
| ON | OFF | Rotate in the CW direction |
| OFF | ON | Rotate in the CCW direction |
| OFF | OFF | Stop |

※ I/O input takes precedence over the RUN/STOP key at the front.

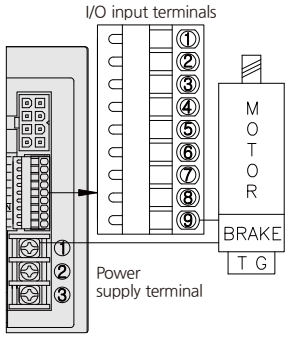
### ▶ Multi-level speed wiring method




You can set the speed in 4 levels by connecting to I/O input terminals No. ③, No. ④ and No. ⑤.

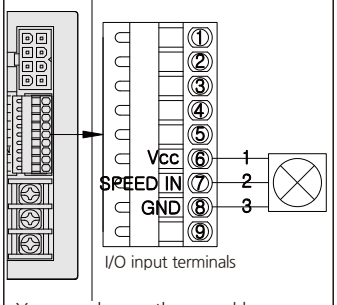
| SW4 | SW5 | MOTOR rotation speed |
|---|---|---|
| OFF | OFF | Set speed at the front |
| ON | OFF | SPD 1 set speed |
| OFF | ON | SPD 2 set speed |
| ON | ON | SPD 3 set speed |

### ▶ Brake wiring method (Speed control brake motor)



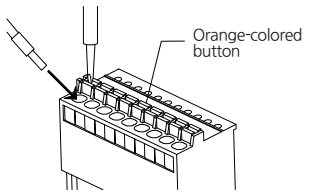

1) Connect the electromagnetic brake line to I/O input terminal No. ⑨ and power supply terminal No. ①.
2) Enable the use of the brake in the parameters.
[OFF => ON] (Refer to Page 14)
3) In the event of a Motor RUN signal, the power will be supplied to the brake, and in the event of a Motor STOP signal, the power supplied to the brake will be cut off.

### ▶ External variable resistance (speed change) wiring method




You can change the speed by connecting variable resistance to I/O input terminals No. ⑥, No. ⑦ and No. ⑧. (20KΩ 1/4W characteristics )

### ▶ LEAD WIRE connection method




※Lead wire specifications
- AWG 26~20 ( 0.14~0.5 ㎟ )
- Length of the stripped sheath : 8mm

Insert the lead wire while depressing the orange-colored button using a screwdriver.

## Operation and Parameter setting sequence

### ■ Operation sequence

① Supplying the AC power
(Connect the AC power to the power supply terminals No. ① and No. ②)

The indicator lamp illuminates. (Rotation speed)

② Controlling the operation key (operation)


When you press the RUN/STOP key, the motor will start rotating at the set speed.
[ RUN/STOP indicator lamp illuminates green ]

③ Rotation speed setting

Press the ▲ key to increase the speed
Press the ▼ key to decrease the speed

Display of rotation speed / When the power is supplied again, the motor will rotate at the new rotation speed.

④ Changing the direction of rotation


When you press the CW/CCW key while the motor is rotating in a CW direction, the rotational direction of the motor will change to CCW.
When you press the CW/CCW key while the motor is rotating in a CCW direction, the rotational direction of the motor will change to CW.
[ If you change the direction while the motor is operating, the direction will not change immediately. The direction changes after the motor decelerates and stops. ]

⑤ Controlling the operation key (stop)


When you press the RUN/STOP key while the motor is operating, the motor will stop.
[ RUN/STOP indicator lamp illuminates red ]

### ■ Parameters

| Display unit | Function | Range | Default value | Note |
|---|---|---|---|---|
| RATE rAtE | Reduction gear ratio | 1~999 | 1.0 | Reduction gear ratio setting<br>REAL RPM =<br>Motor rotation speed / Reduction gear ratio |
| S-ON S-On | Acceleration time | 0~15 | 0.0 | Mode set to accelerate the rotation of the motor slowly (increments of 0.1 second) |
| SOFF SOFF | Deceleration time | 0~15 | 0.0 | Mode set to decelerate the rotation of the motor slowly (increments of 0.1 second) |
| LOCK LOCK | Lock Function | YES<br>NO | NO | Mode set to prevent the change of the set operation condition by locking setting keys other than RUN/STOP key<br>YES: Lock, NO: Unlock |
| DGT dGt | Speed change unit | 1, 5, 10 | 10 | When setting the acceleration/deceleration speed, set a speed change unit.<br>(If set to 10, the speed increases by 10) |
| SPD1 SPd1 | Set speed 1 | 90 ~ 1730 | 500 | Multi-level operation speed SPD1 setting<br>(Operates when the I/O inputs ③ - ④ are connected) |
| SPD2 SPd2 | Set speed 2 | 90 ~ 1730 | 1000 | Multi-level operation speed SPD2 setting<br>(Operates when the I/O inputs ③ - ⑤ are connected) |
| SPD3 SPd3 | Set speed 3 | 90 ~ 1730 | 1500 | Multi-level operation speed SPD3 setting<br>(Operates when the I/O inputs ③ - ④ - ⑤ are connected) |
| BRK brA | Brake function | YES<br>NO | NO | Set whether or not to use the electromagnetic brake<br>YES: Use the brake<br>NO: Do not use the brake |

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■ Parameter setting sequence

① Supplying AC power

The indicator lamp illuminates. (Rotation speed)

② Entering Parameter mode (Press and hold)


Press and hold the CW/CCW key
(for 3 seconds or longer) to enter Parameter mode

③ Selecting a parameter (9 parameters)

Press the Arrow keys to select the desired parameter.
The mode changes in the order of
RATE -> S-ON -> SOFF -> LOCK -> DGT -> SPD1 ->
SPD2 -> SPD3 -> BRK

④ Entering parameter data (press briefly)


Press CW/CCW briefly to enter the selected parameter data. When you press CW/CCW briefly after entering data, the parameter selection mode will be displayed.

⑤ Changing parameter data

Press the arrow keys to change the data value.
Set the desired data value.

⑥ Finishing parameter data change and entering Operation mode (Press and hold)


When you press and hold the CW/CCW key (for 3 seconds or longer), the changed value will be set and saved, and the motor will enter Operation mode.
Caution) If you press the CW/CCW key briefly, the changed value will not be saved.

※ To enter Operation mode after entering Parameter mode, press and hold the [CW/CCW] key.

■ Setting method if using the reduction gear ratio
(ex. 1/10 of the reduction gear ratio)

① Supplying AC power

The indicator lamp illuminates. (Rotation speed)

② Entering Parameter mode (Press and hold)


Press and hold the CW/CCW key
(for 3 seconds or longer) to enter Parameter mode.

③ Selecting a parameter

Press the arrow keys to select the RATE parameter.

④ Entering RATE DATA (Press briefly)


Press the [CW/CCW] key briefly to enter RATE parameter data
(When you press CW/CCW briefly after entering RATE parameter data, the parameter selection mode will be displayed.)

⑤ Changing parameter data

Press the arrow keys to set the reduction gear ratio
- Default value: 1 (Setting range: 1-999)
- Change the set reduction gear ratio from 1 to 10.

⑥ Finishing parameter data change and entering Operation mode (Press and hold)


When you press and hold the CW/CCW key
(for 3 seconds or longer), the changed value will be set and saved, and the motor will enter Operation mode.

※ The displayed speed will change to the reducer output speed due to the setting of 1/10 of the reduction gear ratio.
( 90-1730 rpm => 9-173 rpm )

■ Setting method if using the electromagnetic brake

① Supplying AC power

The indicator lamp illuminates. (Rotation speed)

② Entering Parameter mode (Press and hold)


Press and hold the CW/CCW key
(for 3 seconds or longer) to enter Parameter mode.

③ Selecting a parameter

Press the arrow keys to select the BRK parameter.

④ Entering BRK DATA ( Press briefly )


Press the [CW/CCW] key briefly to enter BRK parameter data.
(When you press CW/CCW briefly after entering BRK parameter data, the parameter selection mode will be displayed.)

⑤ Changing parameter data

Press the arrow keys to set whether or not to use the brake.
- Default value: NO ( Do not use brake )
- To use the brake, change NO => YES

⑥ Finishing parameter data change and entering Operation mode (Press and hold)


When you press and hold the CW/CCW key
(for 3 seconds or longer), the changed value will be set and saved, and the motor will enter Operation mode.