# *DCD-24V10A-C (RS485)(DC12~24V)(User manual)*

**The PWM dc motor driver (DCD-24V10A-C)** can control the speed of a 200W DC motor or the brightness of a DC lamp.

You can interface with an external host controller using RS485 communication.

And you can adjust the acceleration and deceleration times of the motor and limit the motor's overcurrent.

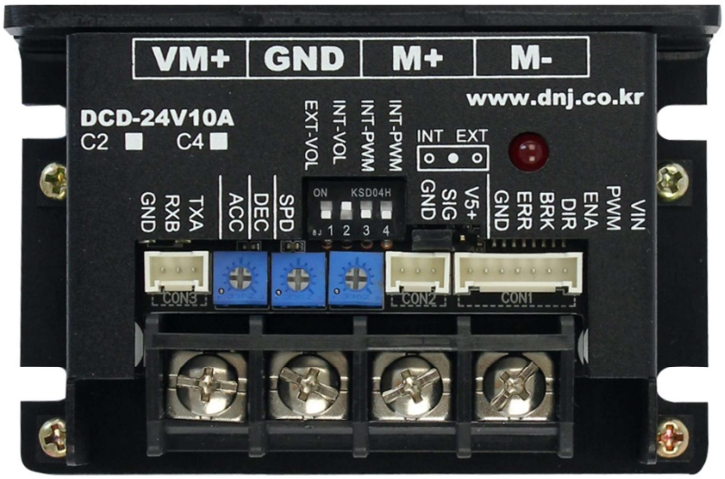
You can control the speed of the DC motor using an internal volume or an external volume.

The driver can control motor braking and motor rotation direction.

It can also be interfaced to an external digital controller with PWM or analog 5V (volume trimmer).

Compact in size, easy to insert into a panel or small case.

The operation status of the load can be checked by LED.




1. DC Power supply voltage Vm, 12 ~ 24Vdc. Normal operating range
2. Maximum continuous rated current 10A.rms

3. Direction(CW/CCW), Enable(ON/OFF), Brake function

   - TTL(3~5Vdc) input, pull up

4. Set value speed

   - Volume trimmer(inner/outer) : 0~3.3Vdc analog input, 10kΩ
   - PWM : TTL (3.3~5V) input, 250Hz, duty 0~99%

5. Protective function

   RMS Current limit (OCP) 20A

6. Alarm out : Driver fault out. RED Led

   This open collector output is active low during one or more of the following conditions :

   Enable input at logic 0, Over current.

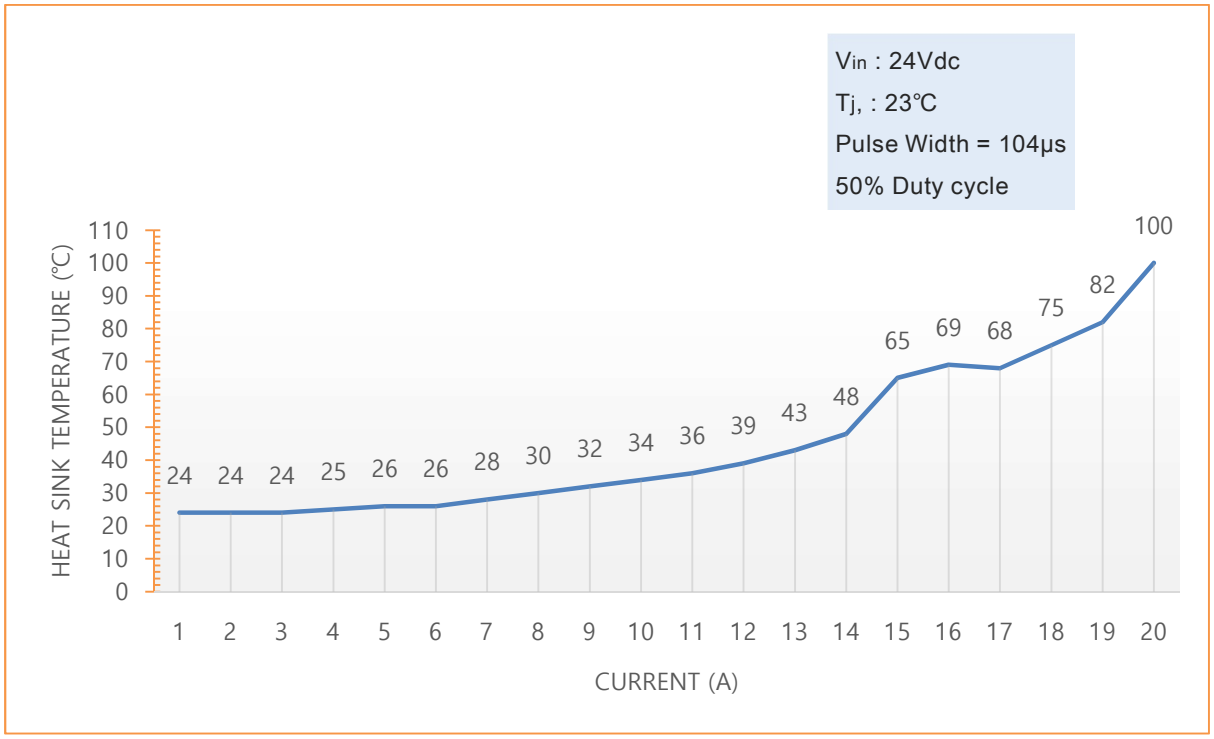
7. Motor current (RMS) change versus driver temperature characteristics

   It is a temperature characteristic graph of the heat sink when the output current of the driver changes (based on actual measurement data).

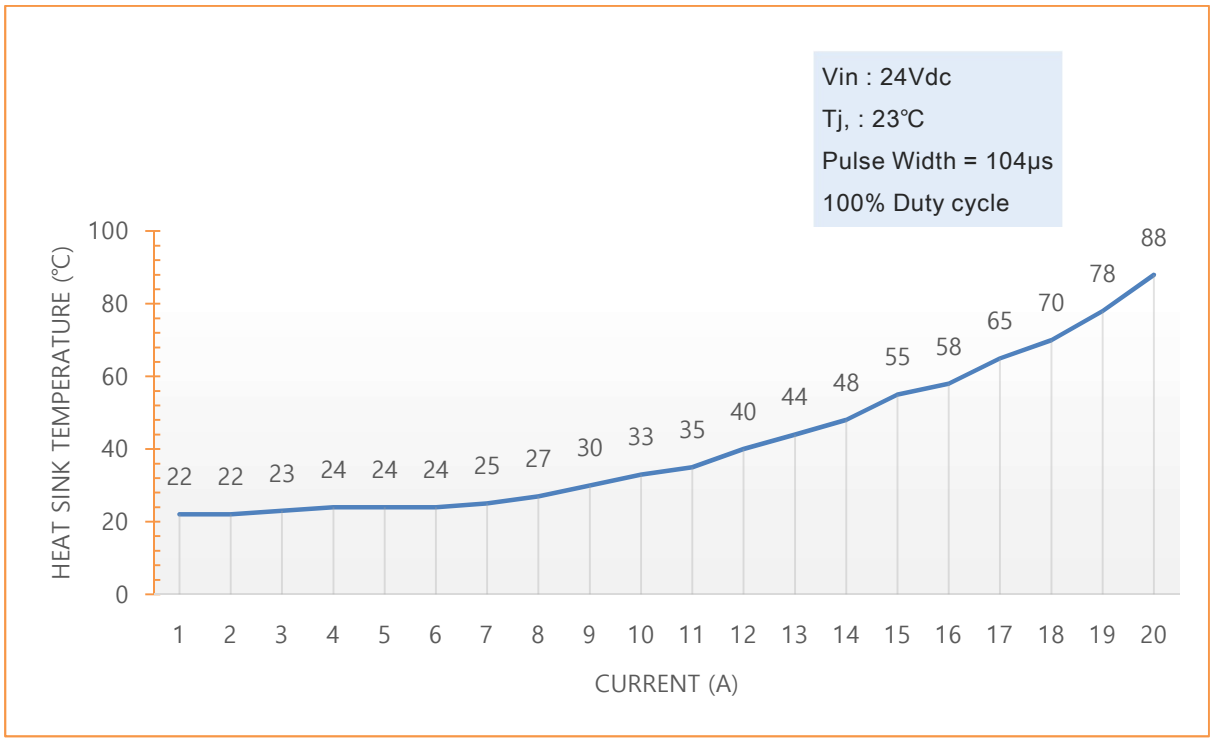
   It is recommended to use an external cooling device suitable for the load current referring to the data.

   Caution: When driving the drive continuously for long time overload, be sure to install an external cooling device. We are not responsible for any damage caused by the use of the product.

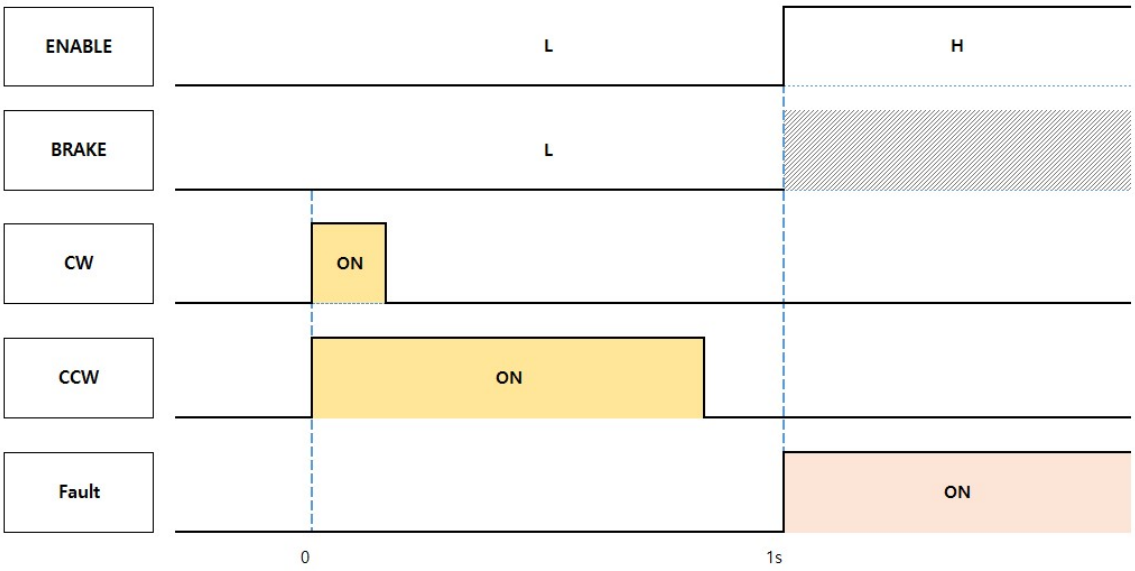
Motor current(RMS) – Driver Heat-sink temperature characteristics (Duty : 50%)




Motor current(RMS) – Driver Heat-sink temperature characteristics (Duty : 100%)



8. LED Indicator




9. Terminals

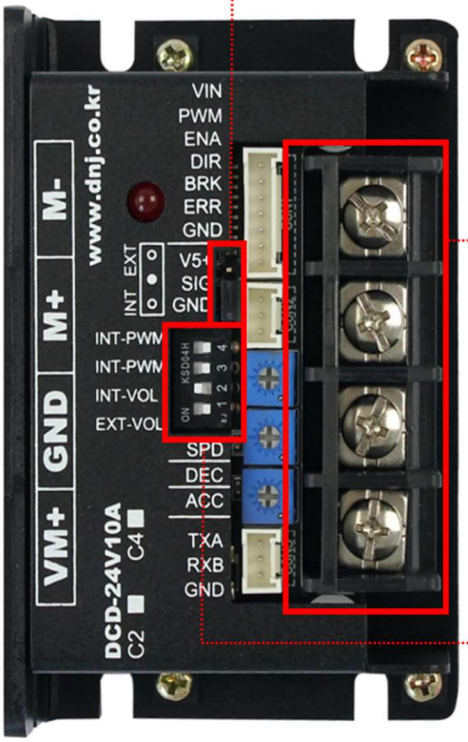
PCB header : SMW200-07, SMW200-03 (Pitch : 2.0 mm, Yeon-ho(korea))

Crimp terminal (Suitable plug) : SMH200-07 SMH200-03, Yeon-ho

10. Weight 155 g

Dimension 91 * 60 * 29 (mm)

## Driver Layout

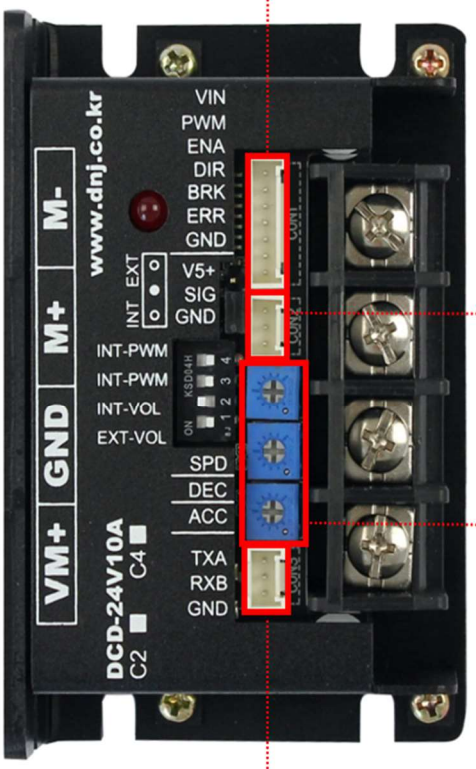



| Jumper | Motor speed Control mode |
|---|---|
| V5+ | External 0 ~ 3.3V input |
| VOL | External Volume input |

| Power | Description / Notes |
|---|---|
| M- | DC Motor (-) |
| M+ | DC Motor (+) |
| GND | Power grounded |
| VM+ | +12 ~ 24 Vdc supply voltage |

| DIP switch | Function (Control mode) |
|---|---|
| 4. INT-PWM | PWM input mode |
| 3. INT-PWM | PWM input mode |
| 2. INT-VOL | Internal Volume mode |
| 1. EXT-VOL | External Volume mode |

| Mode | Switch setting | | | |
|---|---|---|---|---|
| External Volume | ON | OFF | OFF | OFF |
| Internal Volume | OFF | ON | OFF | OFF |
| External PWM | OFF | OFF | ON | ON |




| Control IO | Description / Notes |
|---|---|
| 7. VIN | Motor speed : Analog 0~5V in |
| 6. PWM | Motor speed : PWM in (250Hz, TTL 3~5Vdc) |
| 5. ENA | Enable ON/OFF in (Pull-up) |
| 4. DIR | CW/CCW in (Pull-up) |
| 3. BRK | Brake in (Pull-up) |
| 2. ERR | Fault out (open-collector) |
| 1. GND | Signal grounded |

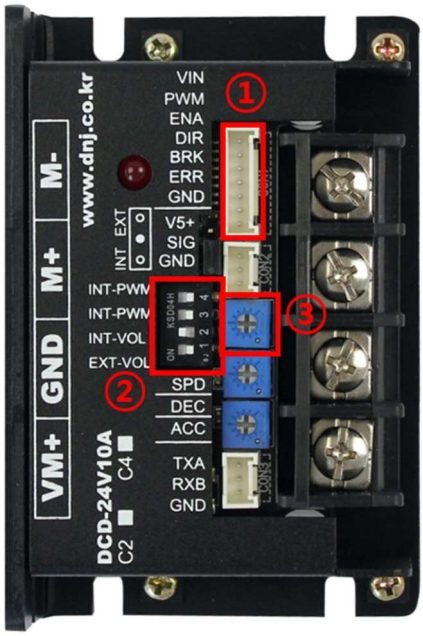
| EXT. Volume | Description / Notes |
|---|---|
| External-Volume (10kΩ) | +3.3 Vdc |
| | Controls motor speed with external volume trimmer |
| | GND |

| Potentiometer | Description / Notes |
|---|---|
| SPD | Controls motor speed with internal volume trimmer(10kΩ) |
| DEC | Deceleration time adjustment (0~5sec) |
| ACC | Acceleration time adjustment (0~5sec) |

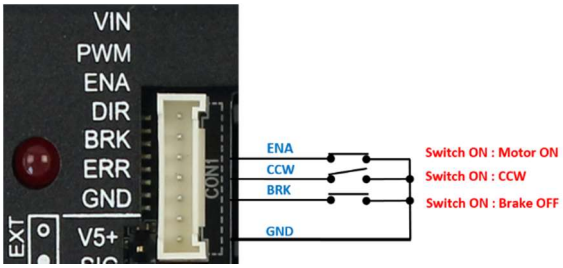
| RS485 | RS485 Communication |
|---|---|
| DP+ | RS485(A) |
| DN- | RS485(B) |
| GND | Signal grounded |

## Driver Setting

### 1. Internal Volume Control



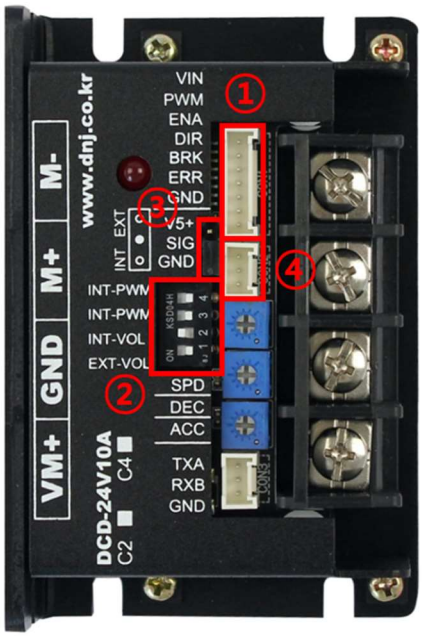

1) Control IO (ENA, BRK) : Active low (GND)



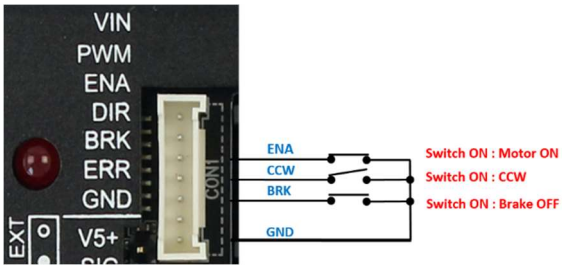

2) Turn on DIP switch 2 [INT-VOL]

3) Turn internal volume(SPD) clockwise

### 2. External Volume Control




1) Control IO (ENA, BRK) : Active low (GND)

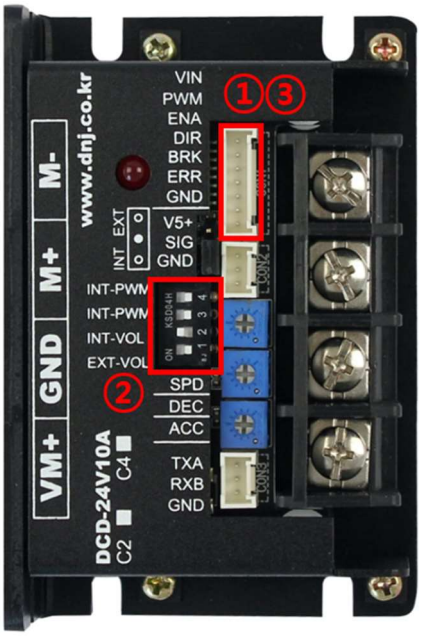



2) Turn on Dip switch 1 [EXT-VOL]

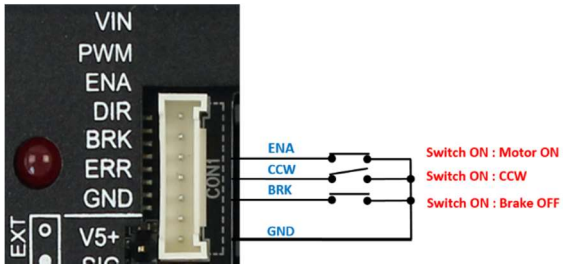
3) Connect Jumper to [VOL]

4) Connect external volume [EXT. volume] and rotate

## 3. PWM control




1) Control IO (ENA, BRK) : Active low (GND)

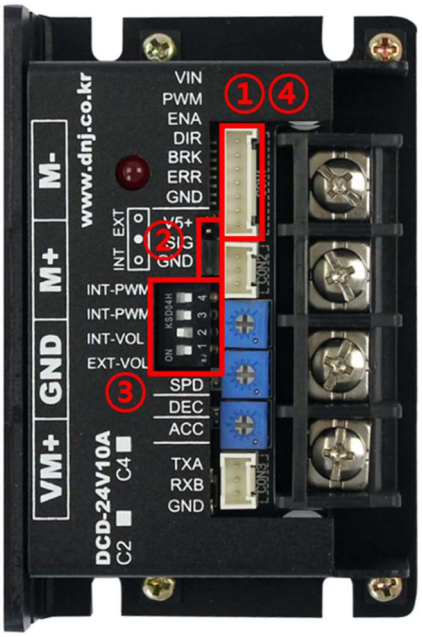



2) Turn on Dip switch 3 [INT-PWM] and 4 [INT-PWM]

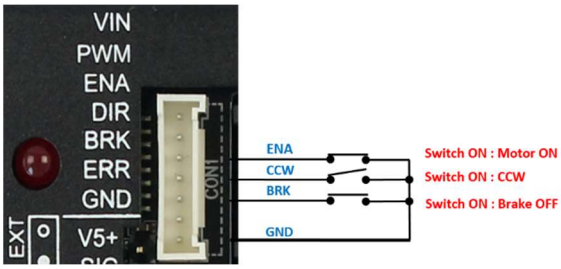
3) Input PWM to 6 pin(PWM) of control IO

250Hz, TTL(3~5V)

## 4. Analog 5V control



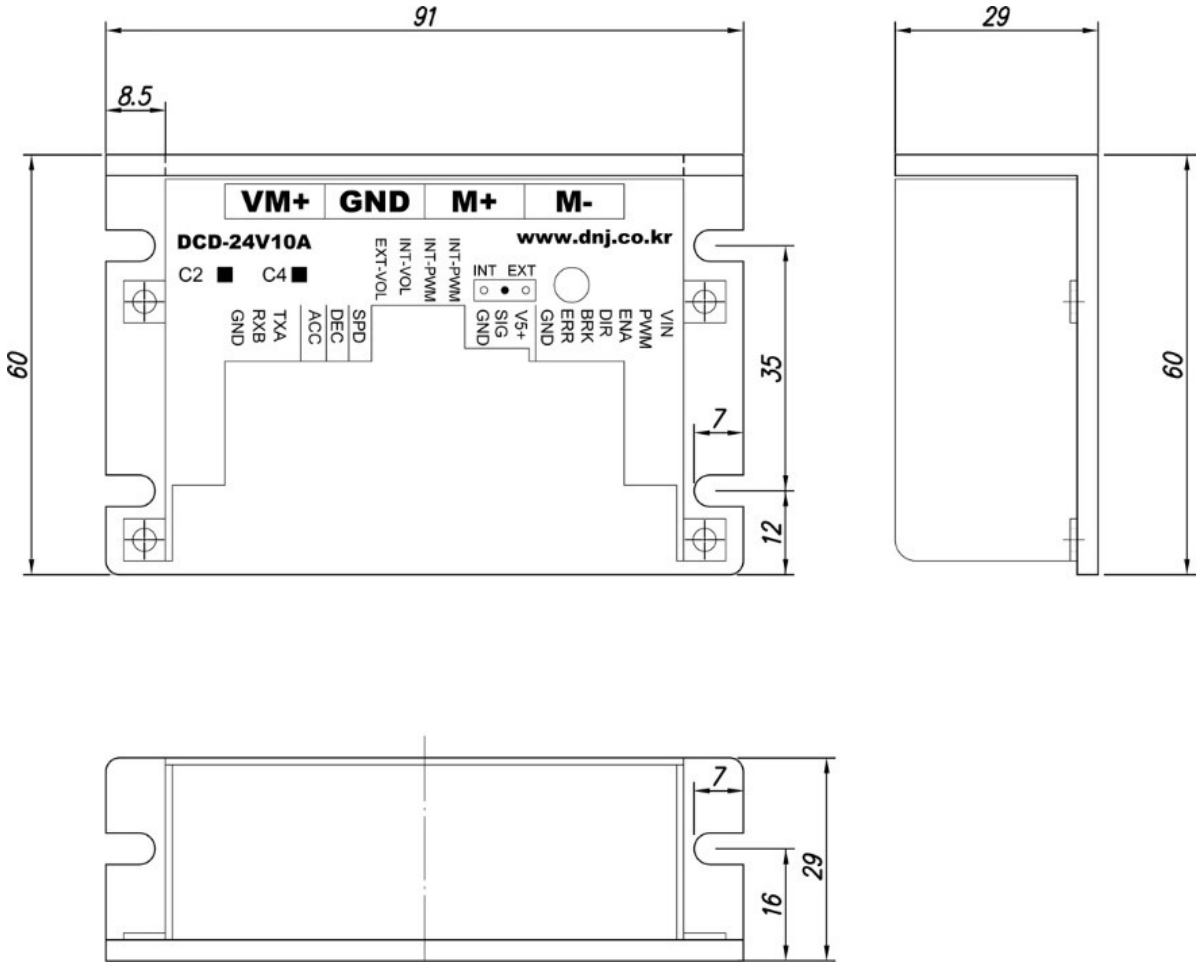

1) Control IO (ENA, BRK) : Active low (GND)




2) Turn on Dip switch 1 번 [EXT-VOL]

3) Connect Jumper to [V5+]

4) Input the analog dc voltage to 7 pin(VIN) of

Control IO : 0~5Vdc

**DIMENSION (mm)**