

BLDC SPEED CONTROL UNIT

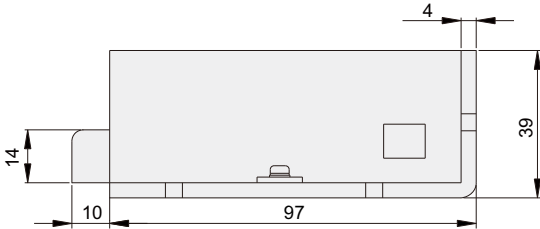
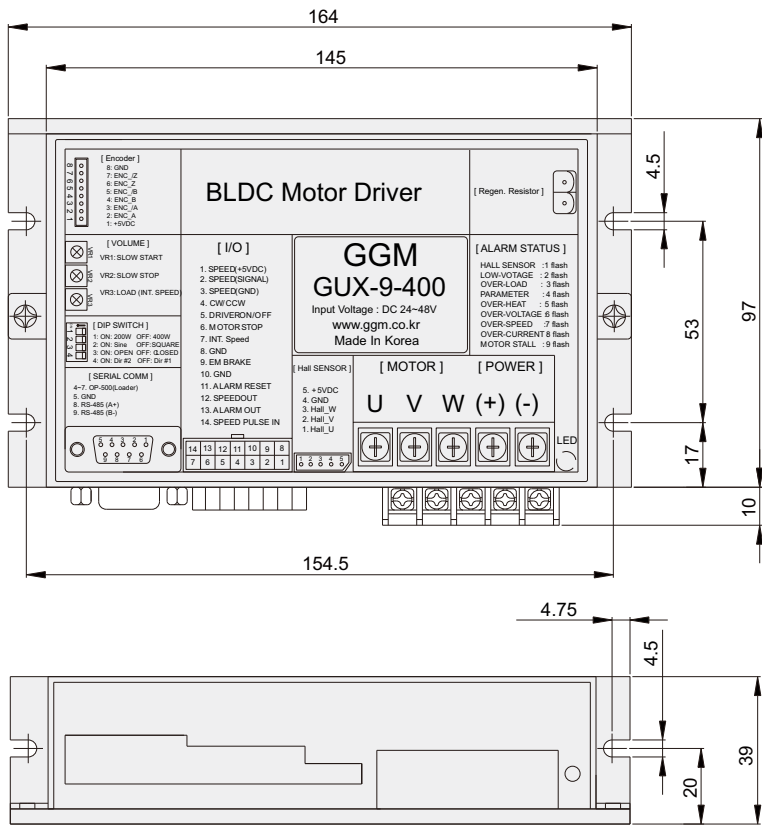


GUX-9-200  
GUX-9-400

X Series motor applied product

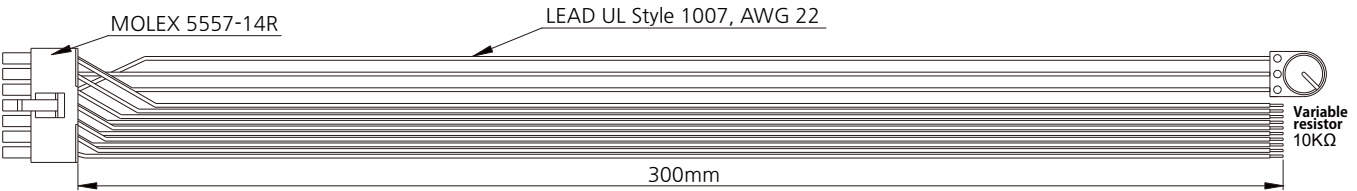
Product appearance

Driver main part outside view



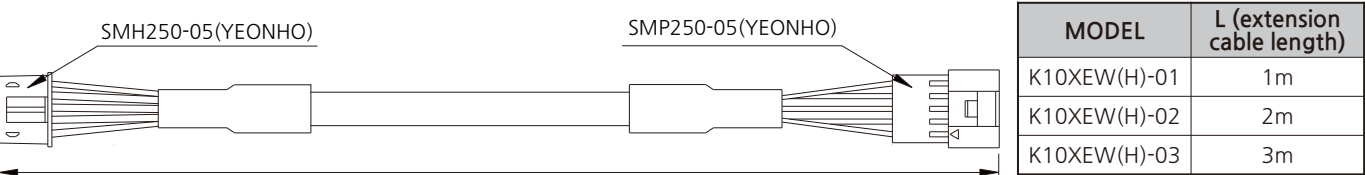
[ Accessory ]

Driver input signal cable, External volume

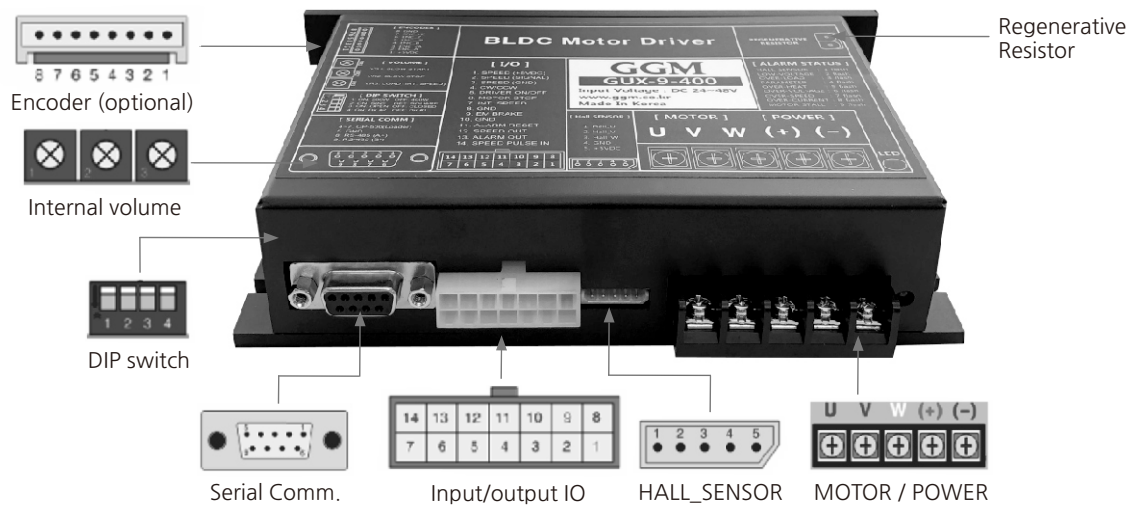


[ Optional Parts ]

Motor extension cable



→ Name and functions of each part



| Internal volume setting |                   |
|-------------------------|-------------------|
|                         |                   |
| 1                       | SLOW START        |
| 2                       | SLOW STOP         |
| 3                       | LOAD (INT. SPEED) |

| DIP switch |                                                |
|------------|------------------------------------------------|
|            |                                                |
| 1          | ON:200W, OFF:400W                              |
| 2          | ON:Sine wave<br>OFF:Square wave                |
| 3          | ON:OPEN, OFF:CLOSE                             |
| 4          | ON:Communication<br>control<br>OFF:I/O Control |

| Serial communication |                |
|----------------------|----------------|
|                      |                |
| 1,2,3                | Not Used       |
| 4                    | OP-500 (+5VDC) |
| 5                    | OP-500 (GND)   |
| 6                    | OP-500 (RX)    |
| 7                    | OP-500 (TX)    |
| 8                    | RS-485 (A+)    |
| 9                    | RS-485 (B-)    |

| Hall sensor |                 |
|-------------|-----------------|
|             |                 |
| 1           | Hall_U (BROWN)  |
| 2           | Hall_V (WHITE)  |
| 3           | Hall_W (ORANGE) |
| 4           | GND (GREEN)     |
| 5           | +5VDC (YELLOW)  |

| Motor and power |                            |
|-----------------|----------------------------|
|                 |                            |
| U               | MOTOR_U (BLUE)             |
| V               | MOTOR_V (PURPLE)           |
| W               | MOTOR_W (GRAY)             |
| +               | V+ (200W-DC24V/400W-DC48V) |
| -               | GND                        |

1.Specifications

| Item                     | Contents                                           |               | Note |
|--------------------------|----------------------------------------------------|---------------|------|
| Rated output[W]          | 200W                                               | 400W          |      |
| Input power[V]           | DC 24V (±10%)                                      | DC 48V (±10%) |      |
| Rated current[A]         | 13 Arms                                            | 11 Arms       |      |
| Maximum current[A]       | 25 Arms                                            | 18 Arms       |      |
| External dimensions (mm) | 164 X 97 X 39                                      |               |      |
| Communication            | RS485                                              |               |      |
| Range of speed control   | 100 ~ 4,000 r/min (Speed regulation less than ±1%) |               |      |

## 2. LED specifications

| Item              | LED indication                                                                            | Note |
|-------------------|-------------------------------------------------------------------------------------------|------|
| Hall sensor alarm | Flashes once every 6 seconds (red)                                                        |      |
| Low voltage alarm | Flashes twice every 6 seconds (red)                                                       |      |
| Overload alarm    | Flashes 3 times every 6 seconds (red)                                                     |      |
| Parameter alarm   | Flashes 4 times every 6 seconds (red)                                                     |      |
| Overheating alarm | Flashes 5 times every 6 seconds (red))                                                    |      |
| Overvoltage alarm | Flashes 6 times every 6 seconds (red)                                                     |      |
| Overspeed alarm   | Flashes 7 times every 6 seconds (red)                                                     |      |
| Overcurrent alarm | Flashes 8 times every 6 seconds (red)                                                     |      |
| Stall alarm       | Flashes 9 times every 6 seconds (red)                                                     |      |
| Normal            | Control ON status: Green ON<br>Control OFF status: OFF<br>Motor operation status: Blue ON |      |

## 3. Specifications for DIP switch and internal volume

| Item            | Pin No. | Contents                                                                                                                                                                                                   | Note                   |
|-----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| DIP switch      | 1       | ON : 200W, OFF: 400W                                                                                                                                                                                       |                        |
|                 | 2       | ON : Sine wave, OFF: Square wave                                                                                                                                                                           |                        |
|                 | 3       | ON : OPEN (Output in proportion to the input voltage value without controlling speed feedback)<br>OFF : CLOSE (Output in proportion to the speed reference voltage value using the speed feedback control) | Default setting<br>OFF |
|                 | 4       | ON : Communication control<br>OFF : I / O control                                                                                                                                                          | Default setting<br>OFF |
| Internal volume | 1       | Adjust acceleration time                                                                                                                                                                                   |                        |
|                 | 2       | Adjust deceleration time                                                                                                                                                                                   |                        |
|                 | 3       | Adjust load factor / Adjust speed at the time of initializing the speed(SPEED INI)                                                                                                                         |                        |

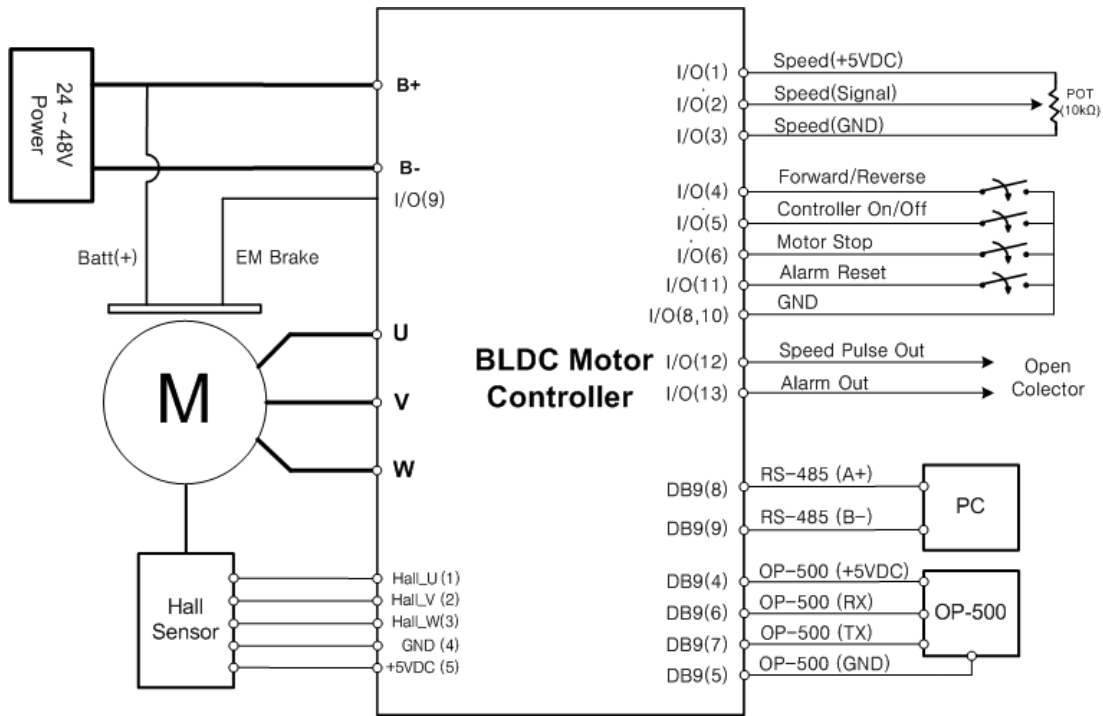
## 4. Specifications for motor and other connectors

| Specifications for connectors          | Pin No. | Symbol                                                                                      | Contents                                     | Note             |
|----------------------------------------|---------|---------------------------------------------------------------------------------------------|----------------------------------------------|------------------|
| MOTOR/POWER<br>[BR-900MB-5]            | 1~3     | U, V, W                                                                                     | Motor power line                             |                  |
|                                        | 4       | V+                                                                                          | 24V, 48V                                     |                  |
|                                        | 5       | GND                                                                                         | Ground                                       |                  |
| HALL_SENSOR<br>[LAB0640-5]             | 1~3     | Hu,Hv,Hw                                                                                    | Hall sensor signal                           |                  |
|                                        | 4,5     | Gnd, 5V                                                                                     | Hall sensor power                            |                  |
| Input/output I/O<br>[LAD1140-14]       | 1~14    | -                                                                                           | Refer to the details of input/output signals |                  |
| Serial Comm.<br>[DB9 (Female)]         | 1~3     | -                                                                                           | Not USED                                     |                  |
|                                        | 4,5     | Power                                                                                       | OP-500(+),OP-500(-)                          | OP option        |
|                                        | 6,7     | RS-232                                                                                      | Packet reception<br>packet transmission      |                  |
|                                        | 8,9     | RS-485                                                                                      | T/R+, T/R-                                   |                  |
| Encoder<br>[SMAW200-8]                 | 1,8     | +5,GND                                                                                      | Encoder power                                | Option<br>YEONHO |
|                                        | 2~7     |                                                                                             | Encoder signal                               |                  |
| Regenerative Resistor<br>[ TB39R-02P ] |         |                                                                                             |                                              |                  |
| Input/output I/O<br>[LAD1140-14]       |         | Input and output control signal line<br>Refer to the attached specifications in the details |                                              |                  |

5. Input and output I/O specification

| Pin No. | Name of signal | Color  | Contents                                                                                                                                                                                                                                                                                                                     |
|---------|----------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | +5V            | Red    | Direct current power for speed setting (+5V) / This is used as the power input of variable resistance for receiving this power supply from the external source and entering the speed, and it is prohibited to use it for any other purpose.<br>10KΩ (1/4W or higher) is used when the external variable resistance is used. |
| 2       | SPEED IN       | Orange | Direct current power input for speed setting/ Change the motor speed up to the maximum speed in proportion to (0~5VDC).                                                                                                                                                                                                      |
| 3       | GND            | Black  | GND                                                                                                                                                                                                                                                                                                                          |
| 4       | CW/CCW         | Yellow | Decides the motor direction. CW direction if the input is "Low" (GND connection).<br>CCW direction if the input is "High" (no GND connection).                                                                                                                                                                               |
| 5       | START          | White  | If the input is "Low" (GND connection), the motor control function is enabled(Motor rotation ready).<br>If the input is "High" (no GND connection) during motor rotation, the motor will stop automatically.                                                                                                                 |
| 6       | STOP           | Blue   | If the input is "Low" (GND connection) during motor rotation, the motor is stopped by the deceleration brake.                                                                                                                                                                                                                |
| 7       | INT_SPEED      | Brown  | If the input is "Low" (GND connection), the speed is set using the internal volume (#3).<br>If the input is "High" (no GND connection), the speed is set using the external volume.                                                                                                                                          |
| 8       | GND            | Black  | GND                                                                                                                                                                                                                                                                                                                          |
| 9       | EM BRAKE       | Green  | Electromagnetic brake operation port                                                                                                                                                                                                                                                                                         |
| 10      | GND            | Black  | GND                                                                                                                                                                                                                                                                                                                          |
| 11      | ALARM Reset    | Gray   | This eliminates the cause of an alarm and forcibly resets the alarm.<br>If the input is "Low" (GND connection), the alarm is reset.                                                                                                                                                                                          |
| 12      | SPEED_OUT      | Pink   | Outputs a signal pulse when the motor rotates.<br>(Outputs 15 signal pulses per one motor rotation.)                                                                                                                                                                                                                         |
| 13      | ALARM_OUT      | Purple | When an alarm occurs, the output is changed to "Low"(0V).<br>Normal operation status is "High".                                                                                                                                                                                                                              |

6. Wiring diagram



7. Function

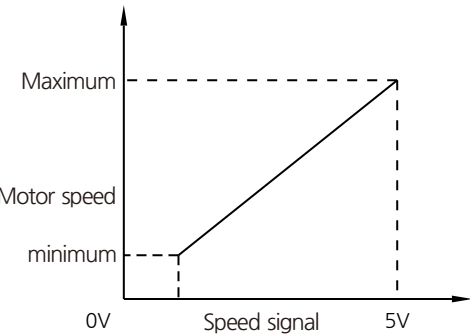
■ Input voltage

200W motor : DC 24V (±10%)  
400W motor : DC 48V (±10%)

■ Speed control

If I/O No. #7 input is "High" (5V), the motor speed is changed up to the maximum speed in proportion to the external volume (I/O#2) input voltage (0~5VDC).  
10KΩ (1/4W or higher) is used when the external variable resistance is used.

If I/O No. #7 input is "Low" (GND connection), the motor speed is changed up to the maximum speed in proportion to input volume (Vol#3) input voltage (0~3.3VDC).  
(Apply after changing the I/O No. #7 setting and resetting Power On )



■ Motor direction control

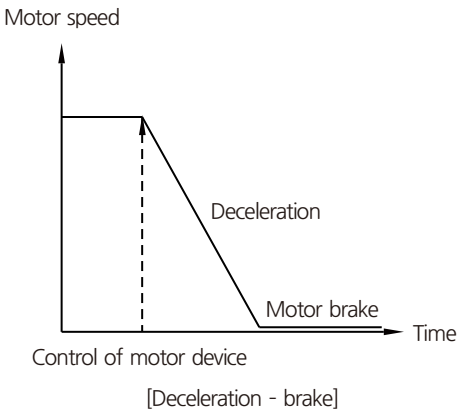
If I/O No. #4 input is "Low" (GND connection), the motor rotates in the direction of CW (motor shaft direction).  
If I/O No. #4 input is "High" (no GND connection), the motor rotates in the direction of CCW (motor shaft direction).

■ Controller ON/OFF control

If I/O No. #5 input is "Low" (GND connection), the motor control function is enabled. (LED Green ON)  
(Motor rotation ready)  
Motor operation begins according to the external volume input value. If the input is "High" (no GND connection) during motor rotation, the motor stops automatically.

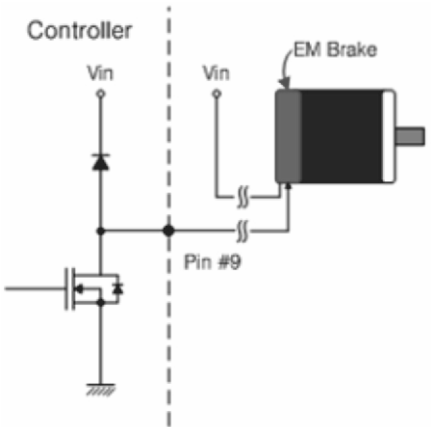
■ Motor stop control

If I/O No. #6 input is "Low" (GND connection) during motor rotation, the motor stops (deceleration brake is not maintained).



■ Electromagnetic brake control

- Electromagnetic brake wiring  
(Connect the power supply line to the control power (+) and the other line to I/O No. #9. )
- When the motor operates after Control ON, the electromagnetic brake is activated.
- When the motor stop operates after Control OFF, the electromagnetic brake is turned off.



■ Output signal

| Output of motor speed pulse                                                                                                                                                                                                                                                                        | Output of alarm signal                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div><div>Driver internal</div><div>user circuit</div></div><div><div>Max +24VDC</div><div>Pull-up Resistor</div><div>R (10mA)</div><div>Pin#12</div></div><div></div></div> <div>I/O #12 outputs a signal pulse when the motor rotates. (Outputs 15 signal pulses per motor rotation.)</div> | <div><div><div>Driver internal</div><div>user circuit</div></div><div><div>Max +24VDC</div><div>Pull-up Resistor</div><div>R (10mA)</div><div>Pin#13</div></div><div></div></div> <div>When an alarm occurs, the I/O #13 output is changed to "Low"(0V).</div> |