

# LG Dynamic Braking Units SV-DBH Series



## Overview

This manual describes the safety instructions that must be followed when installing, operating, and servicing. Read this manual completely before installing. The unit contains high voltage that can cause electric shock resulting in personal injury or loss of life.

### Important User Information

**WARNING** Indicates that incorrect handling may cause hazardous conditions, resulting in personal injury or loss of life.

**CAUTION** Indicates that incorrect handling may cause physical damages.

"CAUTION" level instructions may lead to a serious result according to conditions. Please follow the instructions of caution level for safety.

### Safety Instructions

#### 1. Electric Shock



- Do not open the front cover when the input power is introduced.
- Be sure to remove all input power from the braking unit including drive before servicing.
- Wait at least 10 minutes before servicing and check the residual voltage.
- Service only qualified personnel.

#### 2. Fire



- Mount the braking unit and resistor on a non-flammable material. Installing them on a flammable material may cause a fire.
- Do not connect the braking resistor directly to the DC terminal (P2, N) of the drive. This can cause a fire.

#### 3. Injury



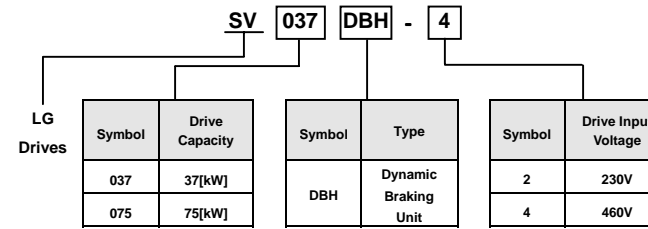
- Do not apply voltage to the terminals higher than the voltage specified in the manual. This can cause damage and burst of the unit.
- Be sure to connect wires to the correct terminal. Especially, ensure the polarity of DC power terminal. Otherwise, damage and burst of the unit may occur.
- Do not touch the resistor right after the power is turned off. The resistor is still hot.

#### 4. Other Instructions



- Do not operate the unit if enclosure damaged.
- Prevent any wire fragments, metallic particles from dropping during installation.

## 1. Nomenclature



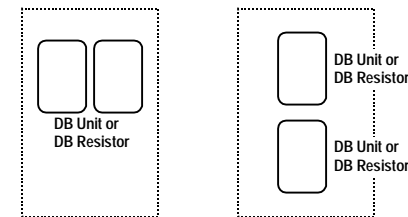
## 2. Specifications

| Model Name                | SV037DBH-2                                 | SV037DBH-4                    | SV075DBH-4 |
|---------------------------|--|-------------------------------|------------|
| Max. DC Input Volt.       | DC 400V (200V Class)                       | DC 800V (400V Class)          |            |
| Applicable Drive Capacity | 37[kW]                                     | 37[kW]                        | 75[kW]     |
| Braking Resistor          | 3<br>5kW                                   | 12<br>5kW                     | 6<br>10W   |
| Average Braking Torque    | 150%                                       |                               |            |
| Enable Duty               | 5% ED                                      |                               |            |
| Output Signal             | Fault output contact, Slave control signal |                               |            |
| Protection (Trip)         | Heat sink Over-heat, Over-current          |                               |            |
| Environmental Conditions  | Ambient Temperature                        | -10 ~ 40                      |            |
|                           | Humidity                                   | Under 90% RH (Non-condensing) |            |
|                           | Altitude                                   | Under 1,000m above sea level  |            |
|                           | Cooling                                    | Self-cooling                  |            |

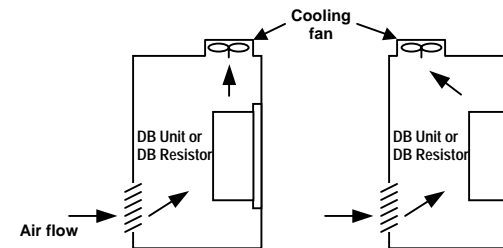
## 3. Installation

### Environmental Conditions

- Do not mount the unit in direct sunlight. Isolate the unit from excessive vibration.
- Protect the unit from moisture, dust, metallic particles, corrosive gases and liquids. Install the units on a non-flammable material and as smooth as possible.
- In case of installing many units in a panel, consider the air flows for power dissipation. (see below figures for proper installation)



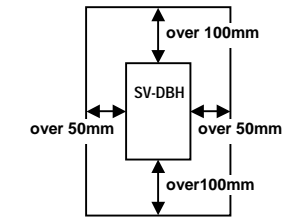
GOOD BAD  
<<Installing units in a panel>>



GOOD BAD  
<<Fan location in a panel>>

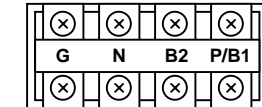
### Mounting

The units must be mounted vertically with sufficient room (horizontally and vertically) from adjacent equipment.



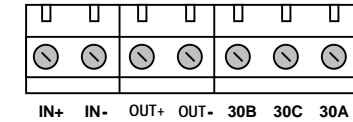
## 4. Terminal Configuration

### 1) Power Terminals



| Terminal | Function   |
|----------|--|
| G        | Ground   |
| N        | DC (-) input. Connect to "N" terminal of drive   |
| B2       | Connect to braking resistor  |
| P/B1     | DC (+) input. Connect to "P2" or "P" terminal of drive and connect to braking resistor |

### 2) Control Terminals



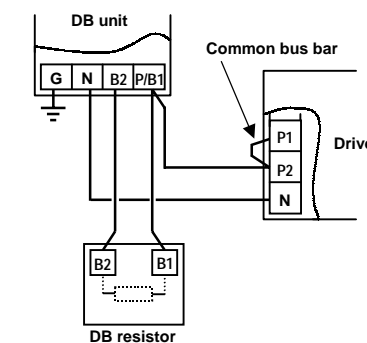
| Terminal | Function  |
|----------|---|
| IN+      | Slave turn on signal input (when "Slave Mode" selected)   |
| IN-      | Slave turn on signal input (when "Slave Mode" selected)   |
| OUT+     | Slave turn on signal output (when "Master Mode" selected) |
| OUT-     | Slave turn on signal output (when "Master Mode" selected) |
| 30A      | Fault signal output                                       |
| 30B      | 30A : Normal open contact                                 |
| 30C      | 30B : Normal close contact, 30C : Common terminal         |

(Refer to sec. 7 for details of Master/Slave Operation)

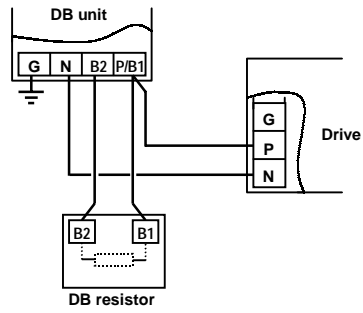
## 5. Terminal Wiring

- The SV-iH series have two kinds of power terminal configurations. Make sure the wiring according to drive capacity.
- SV030iH-4, SV037iH-4, SV045iH-4, SV055iH-4 units do not provide terminals for DC reactor connection.

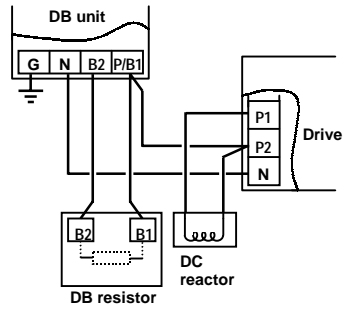
### 1) Wiring Drive, DB unit and DB resistor other than SV030/037/045/055iH-4



2) Wiring Drive, DB unit and DB resistor for SV030/037/045/055IH-4



3) Wiring Drive, DB unit, DB resistor and DC reactor



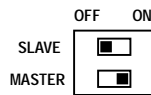
\* ) The SV030/037/045/055DBH-4 units provide only terminal "P" instead of terminal "P1" and "P2". Please refer to "2) Wiring Drive, DB unit and DB resistor for SV030/037/045/055IH-4" for correct wiring.

- Use twist wire shorter than 10m between drive, DB unit and DB resistor.
- In case of master/slave operation, the control wire should be shorter than 2m with twist wire.
- Be sure to earth terminal "G" of drive and DB unit.
- Wire Size:

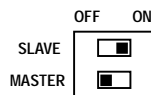
|            | DB units   | Wire size     |
|------------|------------|---------------|
| 200V Class | SV037DBH-2 | 14 # (AWG 6)  |
|            | SV037DBH-4 | 7.5 # (AWG 8) |
| 400V Class | SV075DBH-4 | 14 # (AWG 6)  |

7. Master / Slave Operation

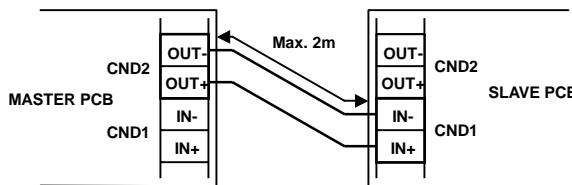
- 1) In case of parallel operation of two braking units, the one must be set at "Master" and the other at "Slave". (When one braking unit is operated it must be set at "Master" : Factory default – "Master")
- 2) How to set to Master (on PCB)
  - Set the "Select Switch S1" as below figure.



- 3) How to set to Slave (on PCB)
  - Set the "Select Switch S1" as below figure.



- 4) Connection between Master and Slave
  - Connect "OUT+" terminal of Master to "IN+" terminal of Slave and "OUT-" terminal of Master to "IN-" terminal of Slave.



8. Combination of DB Units according to Drive Capacity

- 1) Combination of Braking Units (SV-IH Series)

■ 200V Class

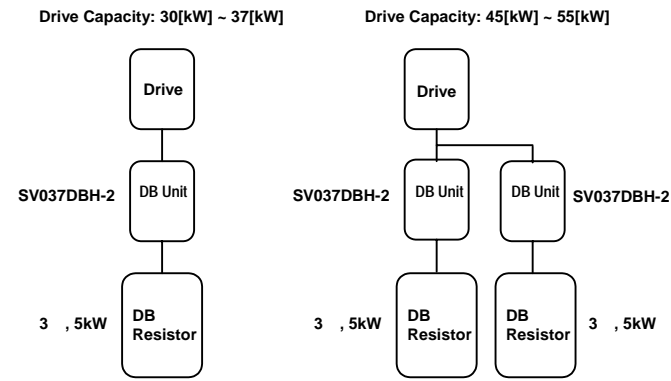
| Drive Type       | SV030IH-2  | SV037IH-2           | SV045IH-2 | SV055IH-2 |
|------------------|------------|---------------------|-----------|-----------|
| Braking Unit     | SV037DBH-2 | SV037DBH-2 × 2 sets |           |           |
| Braking Resistor | 3 , 5kW    | 3 , 5W × 2 sets     |           |           |
| Applicable Motor | 30kW       | 37kW                | 45kW      | 55kW      |

■ 400V Class

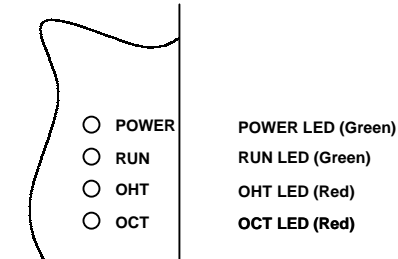
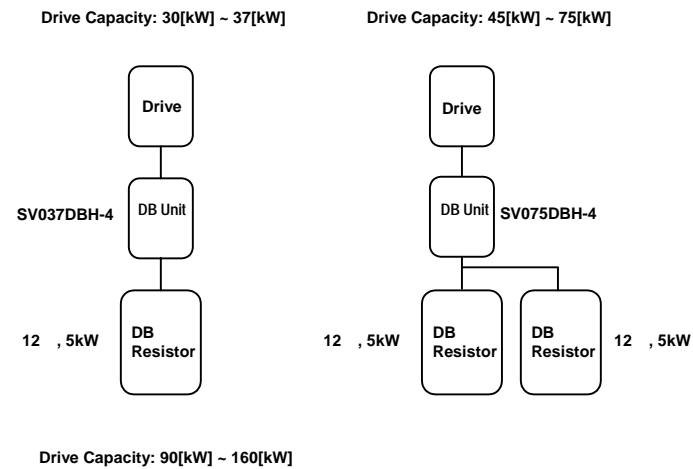
| Drive Type       | SV030IH-4  | SV037IH-4         | SV045IH-4 | SV055IH-4           | SV075IH-4 | SV090IH ~ SV160IH-4 |
|------------------|------------|-------------------|-----------|---------------------|-----------|---------------------|
| Braking Unit     | SV037DBH-4 | SV075DBH-4        |           | SV075DBH-4 × 2 sets |           |                     |
| Braking Resistor | 12 , 5kW   | 12 , 5kW × 2 sets |           | 12 , 5kW × 4 sets   |           |                     |
| Applicable Motor | 30kW       | 37kW              | 45kW      | 55kW                | 75kW      | 90kW ~160kW         |

- See below for the combination of DB Units and DB resistors.
- When using DB units above 160kW contact LGIS or your distributor.

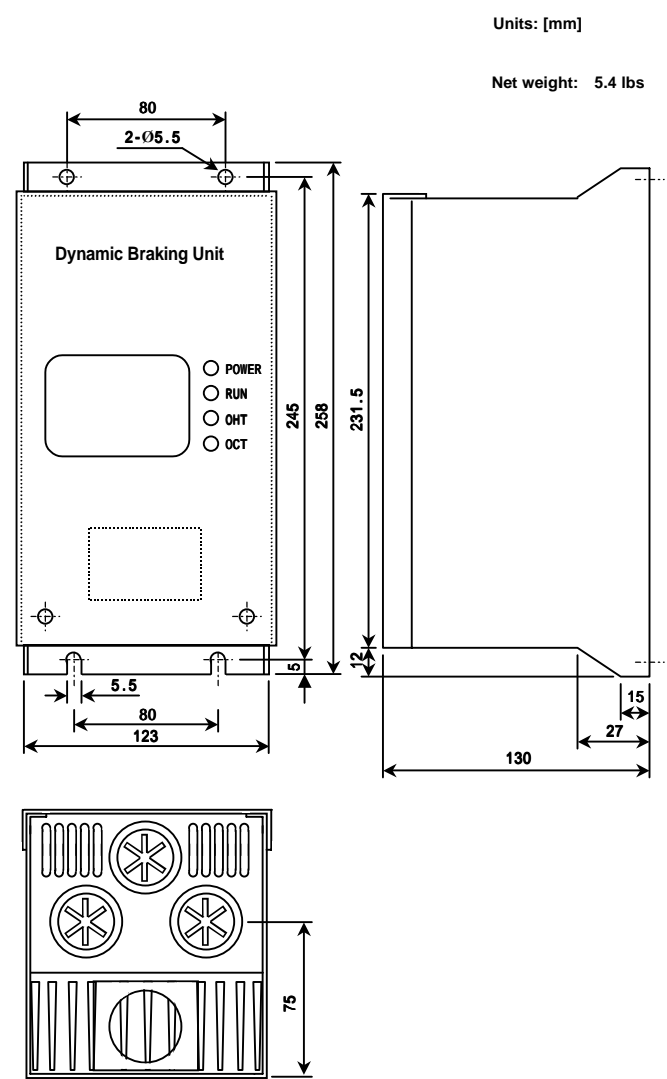
2) Combination of 200V Class Units



2) Combination of 400V Class Units

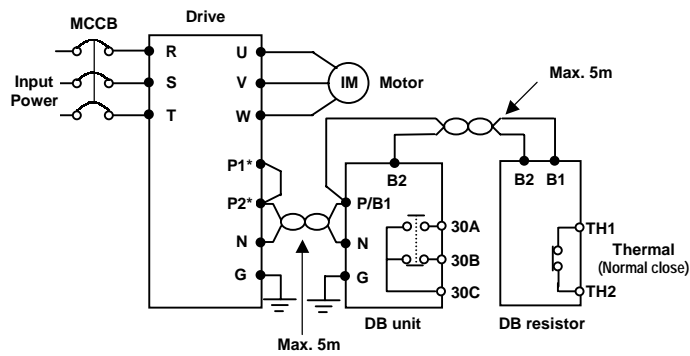


10. Dimensions

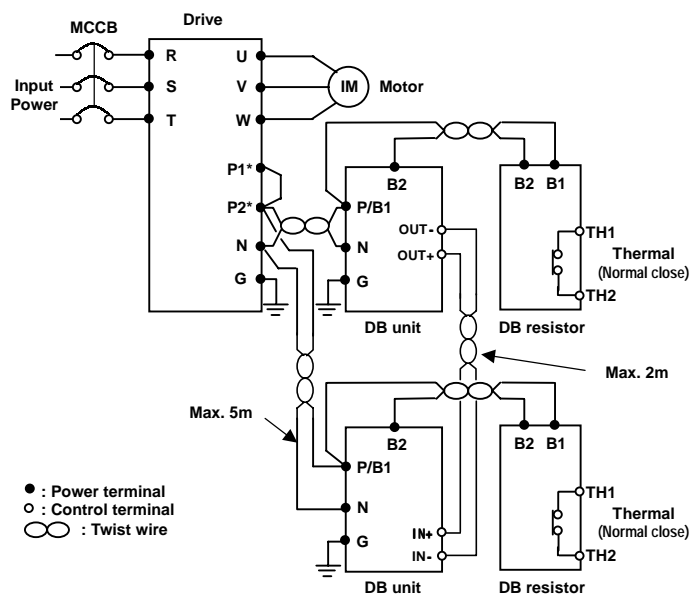


6. Basic Wiring

- 1) Single Operation



- 2) Master/Slave Operation



- : Power terminal
- : Control terminal
- : Twist wire

9. Display LED and Fault Reset

The DB Unit have four LEDs on the frontcover. The green LEDs display main power input and braking operation. The red LEDs display fault status of the unit.

| Display | Function   |
|---------|--|
| POWER   | This LED is turned on when the input power of the unit is introduced.  |
| RUN     | This LED is turned on when the unit is in the braking operation.   |
| OHT     | This LED is turned on and cut off (trip) the output when the heat sink of the unit is over heated.                         |
| OCT     | This LED is turned on when an excessive current flows through the IGBT and the unit cut off the output to protect the unit |