

# EVO6-DBU Braking Unit | User Manual

## 1. Introduction

EVO6-DBU braking units are applied to absorb the motor regenerative energy when 3-phase induction motor stops by deceleration. With this braking unit, the regenerative energy is dissipated in the brake resistors. To prevent mechanical or human injury, please read this instruction sheet thoroughly before wiring.

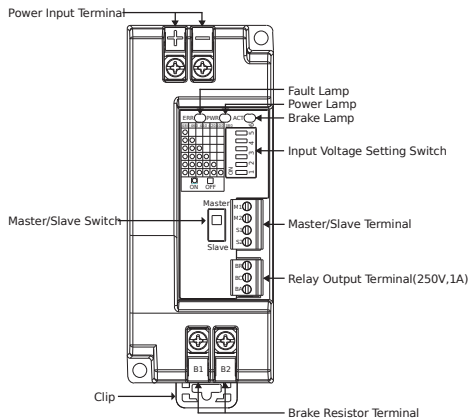
## 2. Safety

- \*Read this instruction manual thoroughly before installation, operation, maintenance or inspection of the braking unit and the braking resistor unit.
- \*Do not install or operate any braking unit or braking resistor unit which is damaged or has missing parts.
- \*Lift the cabinet by the base. When moving the unit, never lift by the front cover.
- \*Only commence wiring after verifying that the power supply is turned OFF.
- \*High voltage exists at all terminals of braking unit and braking resistor unit.
- \*Tighten terminal screws to the specified tightening torque.

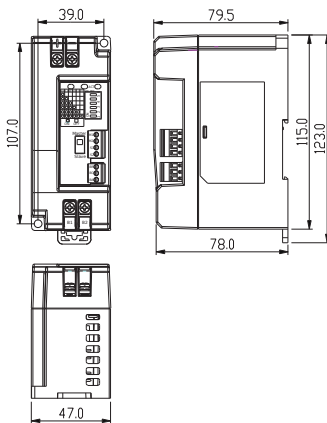
## 3. Wiring Warning

- \*Do not proceed with wiring while power is applied to the circuit.
- \*The wiring gauge and distance must comply with the local regulations.
- \*The + (P), - (N) terminals of the AC motor drive, connected to the braking unit, must be confirmed for correct polarity lest the drive and the brake unit be damaged when power on.
- \*When the brake unit performs brake, the wires connected to + (P), - (N), B1 and B2 would generate a powerful electromagnetic field for a moment due to high current passing through. These wires should be wired separately from other low voltage control circuits lest they make interference or mis-operation.

## 4. Outline



## 5. Dimension

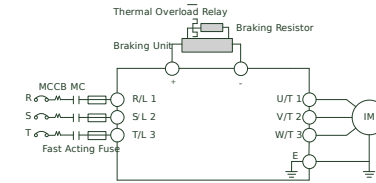


## 6. Specification

Specification		400V	
Model Name		DBU-41D5	DBU-43D7
Output Rating	Max motor capability	1.5kW	3.7kW
	Max Discharge Current	1.8A	8A
	Continuous Discharge Current	0.6A	2.7A
Input Rating	DC Voltage	400~780VDC	
Performance	Braking torque	150%	
	Operation ratio	10%ED	
Protection	Overheat Alarm	Braking unit overheat (100°C)	
	Power Charge Display	Blackout until bus (+) voltage below 50VDC	
	Alarm Output	1 Relay Output	
Environment	Installation Location	Indoor (no corrosive gases, metallic dust)	
	Operating ambient	-10°C ~ +50°C	
	Storage Temperature	-20°C ~ +60°C	
	Humidity	90%R.H., Non-condensing	
	Vibration	9.8m/s <sup>2</sup> (1G) and 20Hz, 2m/s <sup>2</sup> (0.2G) at 20~50Hz	
Mechanical	Dimension(W*H*D)	47*123*79.5 (mm)	
	Installation	Din Rail/ Screw	
	Enclosure	IP20	
	Material	Plastic (same as EVO 6000)	

## 7. Wiring Diagram

### 7.1 Main Circuit

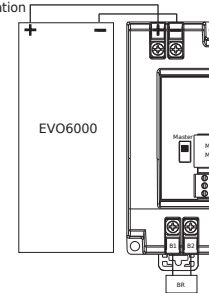


- For safety consideration, install an overload relay between the brake unit and the brake resistor. In conjunction with the magnetic contactor (MC) prior to the drive, it can perform complete protection against abnormality. The purpose of installing the thermal overload relay is to protect the brake resistor from damage due to frequent brake, or due to brake unit keeping operating resulted from unusual high input voltage.

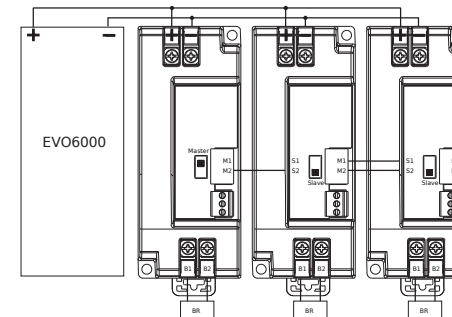
### Note:

- \*Inflammable solids, gases or liquids must be avoided at the location where the brake resistor is installed. The brake resistor had better be installed in individual metallic box with forced air-cooling.
- \*Connect the ground terminal to the Earth Ground. The ground lead must be at least the same gauge wire as leads + (P), - (N).
- \*Please install the brake resistor with forced air-cooling or the equivalent when frequent deceleration brake is performed (over 10%ED).
- \*To avoid personal injury, do not connect/disconnect wires or regulate the setting of the brake unit while power on. Do not touch the terminals of related wiring and any component on PCB lest users be damaged by extreme dangerous DC high voltage.
- \*We suggest to use ring terminals for main circuit wiring. Make sure the terminals are fastened before power on.
- \*The cable length between AC motor drive and braking unit must be less than 2m, the cable length between braking unit and braking resistor must be less than 1m.

### 7.2 Single Installation



### 7.3 Parallel Installation



## 7.3 Wire Gauge

Terminal	USA		Europe & Asia		Terminal Screw Thread
	Suggested Cable Size AWG, kcmil	Applicable Cable Size AWG, kcmil	Suggested Cable Size mm	Applicable Cable Size mm	
+(P), -(N), B1, B2	10	14~8	2.58	1.63 ~ 3.26	M3
M1, M2, S1, S2, RA, RB, RC	20	24~ 16	0.8	0.5 ~ 1.29	M2

## 8. Parameter & Voltage Setting

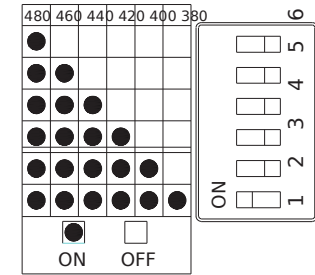
### 8.1 Parameter Setting

Please remember to set P3-03=0 (Stall Prevention During Deceleration) for the best performance in deceleration

### 8.2 Voltage Setting

It may be necessary to select power supply voltage for braking unit according to main circuit power supply type. This setting will affect the voltage level of the braking unit. Please refer to the following table for setting. Please make sure the power has been turned off before setting the voltage. Please set power voltage as the possible highest voltage for unstable power system. For example, in 380VAC power system, If the voltage may be up to 410VAC, 415VAC should be selected.

### • Voltage Setting Switch



### • Operating Level of PN DC Voltage

400V class AC Power	Braking start-up voltage
380Vac	660VDC
400Vac	690VDC
420Vac	720VDC
440Vac	750VDC
460Vac	780VDC
480Vac	780VDC

## 9. Braking Resistor Selection

Voltage	Applicable Motor		Braking Resistor SPEC.	Quantity of Braking Resistor
	HP	kW		
400V Class	0.5	0.4	300W 400 Ω	1
	1	0.75	300W 400 Ω	1
	2	1.5	400W 300 Ω	1
	3	2.2	300W 400 Ω	1
	4	3.7	900W 120 Ω	1