Sumitomo Drive Technologies

ASTERO® Brake Pack Maintenance Manual

■The gear head and motor should be handled, installed and maintained by trained technicians. Carefully read this manual and all accompanying documents before use.
■A copy of this manual should be sent to the actual user of the gear unit.
■This manual should be maintained by the user.

1. Safety and other precautions

⚠CAUTION

General
- The gear head and motor should be operated only within its name plate and catalogue ; otherwise, electric shock, injury or damage to a system may occur.
- Keep hands and all foreign objects from the internal moving part of the gear unit and motor; otherwise, electric shock, injury, fire or damage to a system may occur.
- Damaged units should be taken off-line; otherwise, injury or fire may occur.
- Do not remove the nameplate.
- Any modifications or alterations of any kind, to the unit, will void the warranty and all subsequent claims.

Transport
- Exercise ample care not to drop the unit and fall during transport.

Installation
- Do not place any inflammables around the gear head and motor; otherwise, fire may result.
- Do not place any objects that will hinder ventilation around motor; otherwise, cooling effect is reduced, and may lead to a possible fire hazard and a burn due to excessive heat built-up.
- Do not touch the key way at the shaft end or on the inside of the dear unit and motor; otherwise, injury may result.
- When the unit is used in food processing applications vulnerable to oil contamination, install an oil pan or other such device to cope with rare oil leaking. Otherwise, oil leakage may damage products.

Coupling with other machines
- Install appropriate guard devices around rotation parts ; otherwise, injury may result.
- Confirm the direction of rotation before coupling the unit with its driven machine. Difference in the direction of rotation may cause injury or damage to the system.

Wiring
- Do not touch lead wire when measuring the insulation resistance. Electric shock may result.

Daily inspection and maintenance
- Clean this product regularly. Instead of using water, detergent, or solvents for cleaning, use a brush and wipe it with a dry cloth. Also, ensure that there are no obstacles or things that may be affect-ed in the surrounding area during cleaning.

⚠ DANGER

Wiring
- Connect a power cable to the motor according to the connection diagram or maintenance manual; otherwise, electric shock or fire may result.(Without terminal box, exercise insulation in the connecting part.)
- Do not forcibly curve, pull or clamp the power cable and lead wires; otherwise, electric shock may result.
- Correctly ground the grounding bolt; otherwise, electric shock may result.
- Use power source stated in the nameplate; otherwise, motor's burning or fire may result.

Operation
- Never approach or touch any rotating parts (shaft, etc.) during operation; otherwise, loose clothing caught in these rotation parts may result in severe injury.
- When the power supply is interrupted, be sure to turn off the power switch. Unexpected resumption of power may cause injury or damage to the equipment.

Daily inspection and maintenance
- Never approach or touch any rotating parts (shaft, etc.) during maintenance ; otherwise, loose clothing caught in these rotating parts may result in severe injury.

Inspection upon delivery
- Verify that the unit received is in fact the one ordered. When a different product is installed, injury or damage to the system may result.

2.Brake pack characteristics

Sumitomo's brake packs are non contact types that can instantly stop induction motors or reversible motors by electronic braking. The motor alone can be stopped in less than about 0.1 second. A braking current is applied to the motor for about 0.4 second, then the motor's input power supply is automatically shut off. Unlike electromagnetic brakes, brake packs don't store torque. Since they have no parts to generate mechanical friction, they have long lives. To control a motor using brake packs, a DC power supply for the signal is required (12~24VDC, 0.1A or larger).

3.Standard specifications

Item	BASA,BASAB	BASC,BASCB	BASD,BASDB	BAMC
Rated Voltage Frequency	Single-phase			Three-phase
	AC100V 50/60Hz,AC110V 60Hz	AC200V 50/60Hz,AC220V 60Hz	AC220V-240V 50Hz	AC200V/220V 50/60HZ
Range of Voltage	±10%			
Input signals	Non Contact Type(Photocoupler input)			Contact Type
	DC12V-DC24V(±10%)			
	CW,CCW,FREE			
Ambient temperature	-10°C-+40°C			
Ambient humidity	Under 85%RH with no condensation			
Insulation resistance	At least 100MΩ when measured with a DC500V megger between the brake pack's power terminal and signal input terminal, at nomal temperature and humidity when the brake pack has reached its rated operation.			
Insulation with stand voltage	No malfunction when a 1500V, 50/60Hz current is applied between the brake pack's power terminal and signal input terminal for 1 minute at normal temperature and humidity when the brake pack has reached its rated operation.			

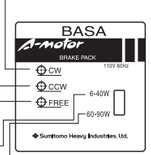
Note) When using FREE input, connect the open corrector of low leakage corrent.

4.Panel display and switches

BAMC doesn't need to turn the switch.

Input signal display

CW	Lights when CW signal is input.
CCW	Lights when CCW signal is input.
FREE	Lights when FREE signal is input.

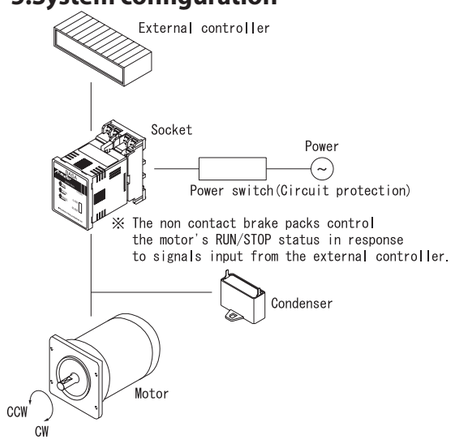


Motor output switches

6～40W / 60～90W	Set to the 6～40W position when a 6, 15, 25 or 40W motor is connected.
6～40W / 60～90W	Set to the 60～90W position when a 60 or 90W motor is connected.

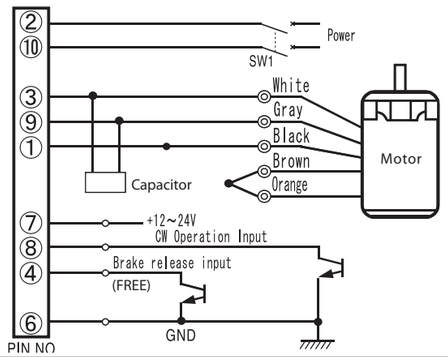
The switch is set to the 60～90W position at shipment.

5.System configuration

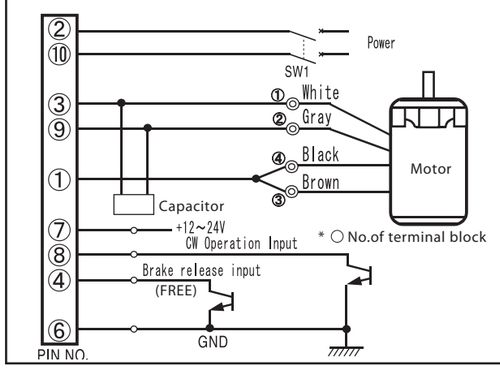


6. Wiring Diagram

■ Brake packs BASA, BASC
- 15~90W Induction motor with lead wire type (except 220~240V/50HZ)

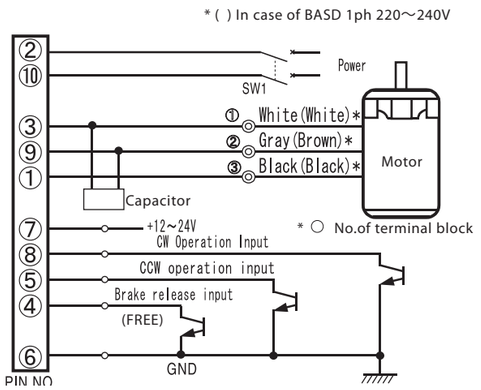


■ Brake packs BASA, BASC
- 6W Induction motor with lead wire type (except 220~240V/50HZ)
- 6~90W Induction motor with terminal box type (except 220~240V/50HZ)

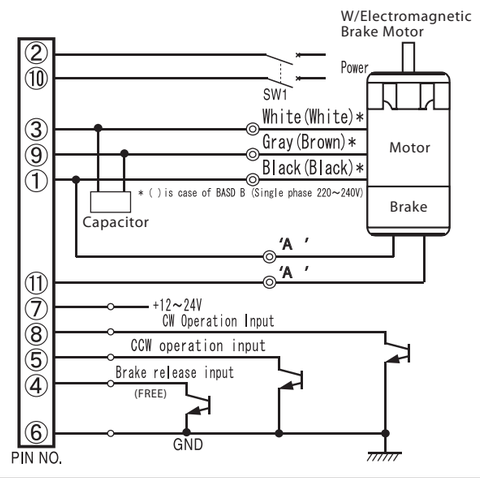


■ Brake packs BASD
- 6~90W Induction motor (220~240V/50HZ) with lead wire type & terminal box type

Brake pack BASA, BASC, BASD
- 6~90W Reversible motor with lead wire type & terminal box type



■ Brake packs BASAB, BASCB,BASDB
- W/Electromagnetic Brake Motor



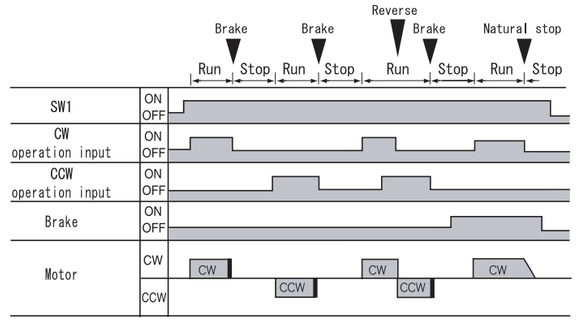


Fig.1 Example of running operation

Voltage	Lead wire 'A'
Single-phase100V-110V	Blue
Single-phase200V-240V	Orange

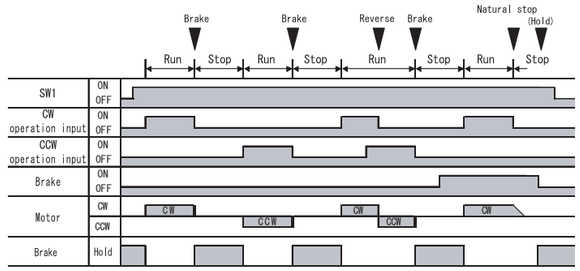
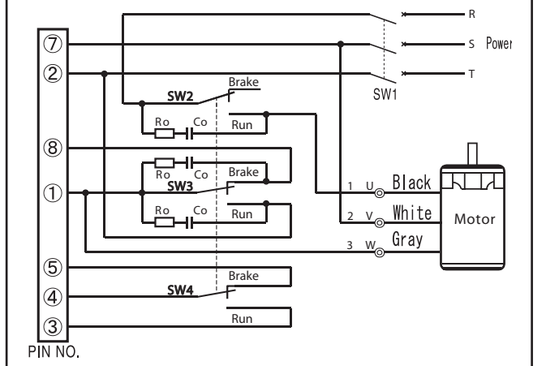


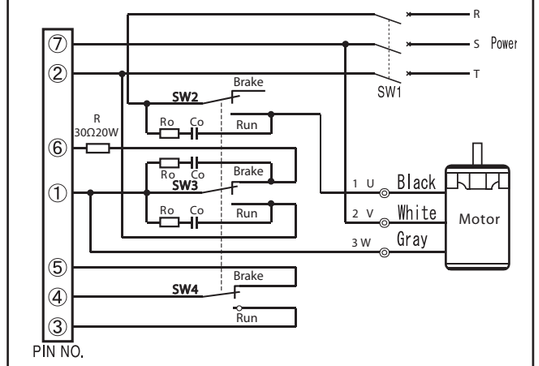
Fig.2 Example of running operation

■ Brake packs BAMC
• 25W, 40W Induction Motor



* When making the brake a short cycle of 5 sec or less, use wiring for 60W or 90W. (Using external resister for brake)

■ Brake packs BAMC
• 60W, 90W Induction Motor



* Use external resister for brake(30Ω 20W).

Switch No.	Capacity of switch	Remarks
SW1	AC250V 5A or more	
SW2	AC250V 7A or more	It must synchronize.
SW3	AC250V 7A or more	
SW4	DC20V 10mA	
R:External resister for brake	30Ω 20W	
CR circuit Ro,Co	Ro = 5-200Ω Co = 0.1-0.2μF for AC250V	Option Type : EACR25

Note: CR circuit is for the surge voltage protection.

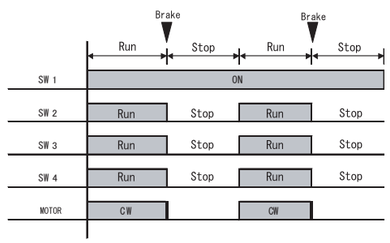


Fig.3 Example of running operation

7.Input signal and motor operation (Fig.1)

• Clockwise (CW) operation input (induction motors)
When the CW operation input is turned ON, the motor shaft rotates clockwise. When turned OFF, the motor stops instantly. Induction motors operate using the CW operation input. When connected as shown in the diagram, the motor operates in the clockwise direction. To operate the motor counterclockwise, switch the gray and brown motor lead wires (the white and brown wires for a 220 to 240V/50Hz motor).
• Counterclockwise (CCW) operation input (reversible motors)
When the CCW operation input is turned ON, the motor shaft rotates counterclockwise. When turned OFF, the motor stops instantly.
If the CW and CCW operation inputs are both turned ON at the same time, CW is given priority.
• Brake release input (induction motors, reversible motors)
When the brake release input is turned ON, the electronic brake won't operate. If the CW or CCW input is turned OFF in this condition, the motor stops naturally after losing its inertia. If the brake release input is turned OFF, the electronic brake will operate. If the CW or CCW input is turned OFF in this condition, the motor stops instantly.

8.Wiring connection cautions

• Don't try to switch the motor's operation direction in the 0.5-second interval after an instant motor stop.
• When using a short motor operation cycle, be sure the surface temperature of the motor case doesn't exceed 90°C.
• Don't start or stop the motor by turning the AC power supply ON/OFF, as surge voltage from the switch may cause product damage.
• Turn the power OFF when the motor is not in use for extended periods.
• Use the shortest possible distance when wiring the motor and brake pack, and brake pack and external controller.
• Use wires with a across-sectional area of at least 0.75mm for the motor wiring and AC power wiring.
• Don't bundle the motor wiring/AC power wiring (terminal Nos. 1, 2, 3, 9 and 10) with the signal wiring (terminal Nos. 4, 5, 6, 7 and 8). Install the two sets of wiring at least 10cm apart.
• Don't solder anything to the brake pack's terminal pins directly.
• Turn the power OFF before inserting the brake pack into the socket, Insert the brake pack securely.
• Always ground the terminal of pin No.6, if motor operation will include instant stops.

9. Warranty

The scope of warranty of our delivered products is limited only to what we manufactured.
Warranty (period and description)

Warranty period	The warranty period applies only to new products and represents 18 months after the shipment or 12 months after the actual operation, whichever is shorter.
Description	If the product failed within the warranty period, during which despite a proper mounting, connection and maintenance & administration are followed according to the maintenance manual, and the product is properly run based on the specification on the catalog or under conditions agreed separately, we will repair or provide an alternative product at our discretion for free of charge, except the exclusions below. However, as far as the product is connected with customers' other devices, we will not indemnify those expenses on dismounting from/mounting on the devices, etc. and other associated construction expenses, transportation expenses and opportunity loss and operation loss the customers suffered from, and other indirect damages.
Exclusion from the warranty	The following items will be excluded from the warranty: 1. A breakdown resulting from defects in the installation of the product and coupling with other devices, etc. 2. A breakdown resulting from insufficient maintenance & administration and improper handling of the product, including a case that the product is not stored according to our defined storage manual. 3. A breakdown resulting from operation which does not fall within our specification and other operation conditions and use status we hardly can know. 4. A breakdown resulting from defects, special specification, etc. of device prepared and connected by customer. 5. A breakdown resulting from disassembly, parts replacement, and modification conducted by the customer. 6. A breakdown resulting from defects in parts supplied or specified by customers. 7. A breakdown caused by inevitable force including earthquake, fire, flood disaster, salt damage, gas damage, and lightning strike, etc. 8. Natural wear and tear, abrasion, and deterioration of such relevant consumable parts as a bearing and oil seal, etc. under normal usage. 9. A breakdown caused for reasons not attributable to each of the above item.

Specifications, dimensions, and other items are subject to change without prior notice.

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