Introduction

BX

FBLI

AXU

AXH

BHF

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SD

AC Motor Systems

Before Speed (

Connection and Operation Names and Functions of Control Unit





Notes:

- The RUN/STAND-BY switch is not a power ON/OFF switch.
- When you want to stop the motor for an extended period, turn off the control unit power.

Connection Diagrams





Motor Connection

Insert the motor cable connector into the motor connector (MOTOR) on the control unit. Insert it until a click sound is audible. To expand the distance between the motor and control unit, use an optional extension cable. The connection can be extended to a maximum of 34.4 feet (10.5 m). **Extension cable** \rightarrow Page B-57

Power Connection

Connect the included power supply cable to the power supply terminal of the control unit. When the included power supply cable is not used, use a cable with a diameter equivalent to AWG22 or more. In that case, round crimp terminals with insulation should be used.



Ground

For the Protective Earth cable, use a cable with a diameter equivalent to AWG18 or more.

Operation

The direction of motor rotation is as viewed from the output shaft end of the motor. "CW" indicates clockwise direction, while "CCW" indicates counterclockwise direction.

Operation Using the RUN/STAND-BY Switch

When the RUN/STAND-BY switch is set to the "RUN" position, the motor will run. When it is set to the "STAND-BY" position, the motor will stop.



The direction of rotation depends on how the short circuit bar at the back of control unit is connected. Connect the short circuit bar between the CW and COM or CCW and COM. Do not use the short circuit bar for any other purpose.

CCW Rotation



Operating Using External Signals

CW Rotation

Set the RUN/STAND-BY switch to the "RUN" position.



• See "Input Circuit Connection Example" shown on the next page for connection.



Note: The CW and CCW input signals must be ON for at least 20 ms. When both the CW and CCW inputs are turned on, the motor stops instantaneously. *Motor does not run for 0.5 s after instantaneous stop, if a reversing run signal is input.

Signal Input Circuit Input Circuit



Input Circuit Connection Example

Set the RUN/STAND-BY switch to the "RUN" position.

Small-capacity switch and relay



- Use a small-capacity contact type relay capable of opening and closing 12 VDC, 5 mA.
- Transistor output type controller



Rotation Direction of Motor

- CW (clockwise) directional operation When CW input is turned on, the motor runs in a clockwise direction. When CW input is turned off, the motor stops.
- CCW (counterclockwise) directional operation When CCW input is turned on, the motor runs in a counterclockwise direction. When CCW input is turned off, the motor stops.

When both the CW and CCW inputs are turned on simultaneously, the motor stops instantly. Instantaneous reversing operation is not possible.

Notes:

- Wait for more than 20 ms when changing input signals of CW and CCW.
- Do not use a solid state relay (SSR) to turn on or off power. The motor and control unit may be damaged if it is used.
- When you want to use the controller with a built-in clamp diode, pay attention to the sequence of turning on or off the power.
 Power ON : Controller ON→Control Unit ON
- Power OFF : Control Unit OFF→Controller OFF



If the control unit power is turned on first when connected as shown above, or the controller power is turned off with the control unit power turned on, current will be applied, as indicated by the arrows in the diagram. This may cause the motor to run.

When the power is turned on or off simultaneously, the motor may run temporarily due to differences in power capacity. The controller power must be turned on first, and control unit power must be turned off first.

Signal Output Circuit

Output Circuit



Output Circuit Connection Example



Notes:

- The signal output is Open Collector Output.
- Use the power supply of 26.4 VDC or less to connect the limit resistance (R) so that output current does not exceed 10 mA.

SPEED Output

The speed output signal is synchronized with the motor speed. The system outputs pulses (with a width of approximately 0.5 ms) at a rate of 30 pulses per rotation of the motor output shaft. You can measure the speed output frequency and calculate motor speed.



To check the reduced motor speed visually (the speed at the motor output shaft or at the gearhead output shaft), connect a speed indicator **SDM496** (sold separately). Speed Indicator \rightarrow Page A-214

Notes for Connection:

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- When you want to extend the input/output signal cable, the length must not exceed 6.6ft. (2m). The cable should be as short as possible in order to minimize noise.
- Signal wires and motor wires should be kept away from equipment, power cables and other sources of magnetic noise.

Setting the Acceleration/Deceleration Time

The motor accelerates slowly when it starts up and decelerates slowly when it stops. This acceleration/ deceleration time can be set within the range from 0.5 to 10 sec (2000 r/min without load). The time can be set using the acceleration/deceleration potentiometer. Remove the front panel of control unit to access the potentiometer. ***** The figure shows the control unit with the front panel removed.

○ Acceleration/Deceleration time setting

potentiometer Time is increased by turning the switch clockwise. Use an insulated Phillips Screwdriver for this operation. The shortest time is selected at the time of shipment.

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Short

Characteristics B-50