Connection and Operation

Names and Functions of Driver Parts

Indication
Displays the monitor contents, alarm, etc.

Dial
Changes the speed and parameters. The value is set when the dial is pressed after changes are made.

Operating Switch
The motor is started by setting it to the “RUN” position. Setting it to the “STAND-BY” position stops the motor.

Rotation Direction Switch
Changes the rotation direction of the motor.

Front Panel

<Front side of the driver>

When Front Panel is Removed

Mode Key
Changes the operating mode.

FUNCTION Key
Changes the indication and functions for the operating mode.

Acceleration/deceleration Time Potentiometer
Sets the acceleration time for starting the motor and deceleration time for motor standstill. Setting range: 0.1 s ~ 15.0 s

Installation Holes (2 locations)

Main Power Connector (CN1)
Connects to the main power supply. Connect a power supply that matches with the power supply voltage to be used.

Applicable Lead Wire Size
AWG18 ~ 14 (0.75 ~ 2.0 mm²)

Applicable Crimp Terminals
Use the following terminals for connection using crimp terminals. Please note that the applicable crimp terminal varies depending on the size of the lead wire.

Manufacturer: Phoenix Contact
Product No.

● Operation with the Driver Only

Run/Stop
When the operating switch is set to the “RUN” position, the motor will start. When it is returned to the “STAND-BY” position, the motor decelerates to a stop.

Speed Setting Method
Set the motor speed by using the dial. Setting range: 80 ~ 4000 r/min

Turning the dial slowly to the right increases the speed by 1 r/min increments, while turning it to the left reduces the speed by 1 r/min increments. Turning the dial fast produces a great variation in speed. Pressing the dial sets the speed.

<Back side of the driver>

Extended Functions
Remove the front panel to be able to perform various settings by operating the keys.

<table>
<thead>
<tr>
<th>Operating Mode</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring</td>
<td>Speed, load factor, operating data number, alarm, warning, I/O monitor</td>
</tr>
<tr>
<td>Data</td>
<td>Data No. 0, No. 1, No. 2, No. 3 (4 points) Operating speed, acceleration time, deceleration time, reset</td>
</tr>
<tr>
<td>Parameters</td>
<td>Gear ratio, speed increasing ratio, initial panel indication, initial operation inhibition alarm, analog acceleration/deceleration, external operating signal input, input function selection, output function selection, overload alarm detection time except during axial lock, overload warning level, speed attainment width, parameter mode reset</td>
</tr>
</tbody>
</table>

Motor Connector (CN2)
Connects to the signal connector of the motor.

Main Power Connector (CN1)
Connects to the main power supply.

Protective Earth Terminals (2 locations)
Ground either one of the protective earth terminals.

Sensor Connector (CN3)
Connects to the signal connector of the motor.

Motor Connector (CN2)
Connects to the power connector of the motor.

I/O Signal Connector (CN4)
Connects with the I/O signals.

I/O Signal Connector (CN4)
Connects with the I/O signals.
Operation by External Signals

Operating Method

- Using the built-in power supply in the driver, the motor is operated through signals from external sources (switches, relays, etc.). Connect Pins No. 5~8 of the I/O signal connector (CN4) as in the figure to the right.
- When operating using external signals, change the parameter setting in the "External Operating Signal Input" to "on: Activated", and set the operating switch to the "RUN" position.

I/O Signals Connector (CN4)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Terminal Name</th>
<th>Signal Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y1</td>
<td>ALARM-OUT1*</td>
<td>It turns OFF when an alarm is generated. (Normally closed)</td>
</tr>
<tr>
<td>2</td>
<td>Y1</td>
<td>IN-COM1</td>
<td>Input signal common (0 V)</td>
</tr>
<tr>
<td>3</td>
<td>X0</td>
<td>REV</td>
<td>The motor rotates in the FWD direction.</td>
</tr>
<tr>
<td>4</td>
<td>X0</td>
<td>IN-COM1</td>
<td>Input signal common (0 V)</td>
</tr>
<tr>
<td>5</td>
<td>X1</td>
<td>REV</td>
<td>The motor rotates in the REV direction.</td>
</tr>
<tr>
<td>6</td>
<td>X2</td>
<td>MO</td>
<td>Select the operating data.</td>
</tr>
<tr>
<td>7</td>
<td>X1</td>
<td>IN-COM1</td>
<td>Input signal common (0 V)</td>
</tr>
<tr>
<td>8</td>
<td>X0</td>
<td>FWD</td>
<td>The motor rotates in the FWD direction.</td>
</tr>
<tr>
<td>9</td>
<td>X0</td>
<td>IN-COM1</td>
<td>Input signal common (0 V)</td>
</tr>
</tbody>
</table>

These are initial settings. The allocation of values can be changed with the parameters.

Timing Chart

This is a timing chart when operated via external signals. When the rotation direction switch is set to "FWD".

Connection Diagram

The figure shows an example for a motor operated with sequence connection by a single-phase 100-120 VAC input-type transistor.

Sink Logic

- Circuit Breaker
- Power Supply Connection
- Motor Connection
- Grounding the Motor
- Connection to Input Signals
  - 20.4~28.8 VDC
  - 100 mA or less
- Motor Connector CN2
- Motor Connector CN4
- Motor Connector CN1
- Motor Connector CN3
- Sensor Connector CN3
- Control Circuit
  - 5 kΩ
  - 820 Ω

Source Logic

- Circuit Breaker
- Power Supply Connection
- Motor Connection
- Grounding the Motor
- Connection to Input Signals
  - 20.4~28.8 VDC
  - 100 mA or less
- Motor Connector CN2
- Motor Connector CN1
- Motor Connector CN4
- Motor Connector CN3
- Sensor Connector CN3
- Control Circuit
  - 5 kΩ
  - 820 Ω

Connect a limiting resistor R that corresponds to the power supply used, so that the current that flows with the output signals does not exceed 100 mA.