Brushless Motor Troubleshooting:
The motor doesn't run

Notes

Oriental motor

(1) In order to ensure a safe use of the system, please refer to the operating manuals and operating instructions for each device such as "Safety Precautions" and "Safety Essentials". Please check the contents before use.

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(3) The information contained in this document is as of August 2021.
The information in this document is subject to change without notice.

(4) This document describes the malfunction of the equipment and does not cover the individual operation, installation or wiring methods. For further information, other than the malfunction of the equipment, please refer to the operating manual of the product or contact the manufacturer for more information.
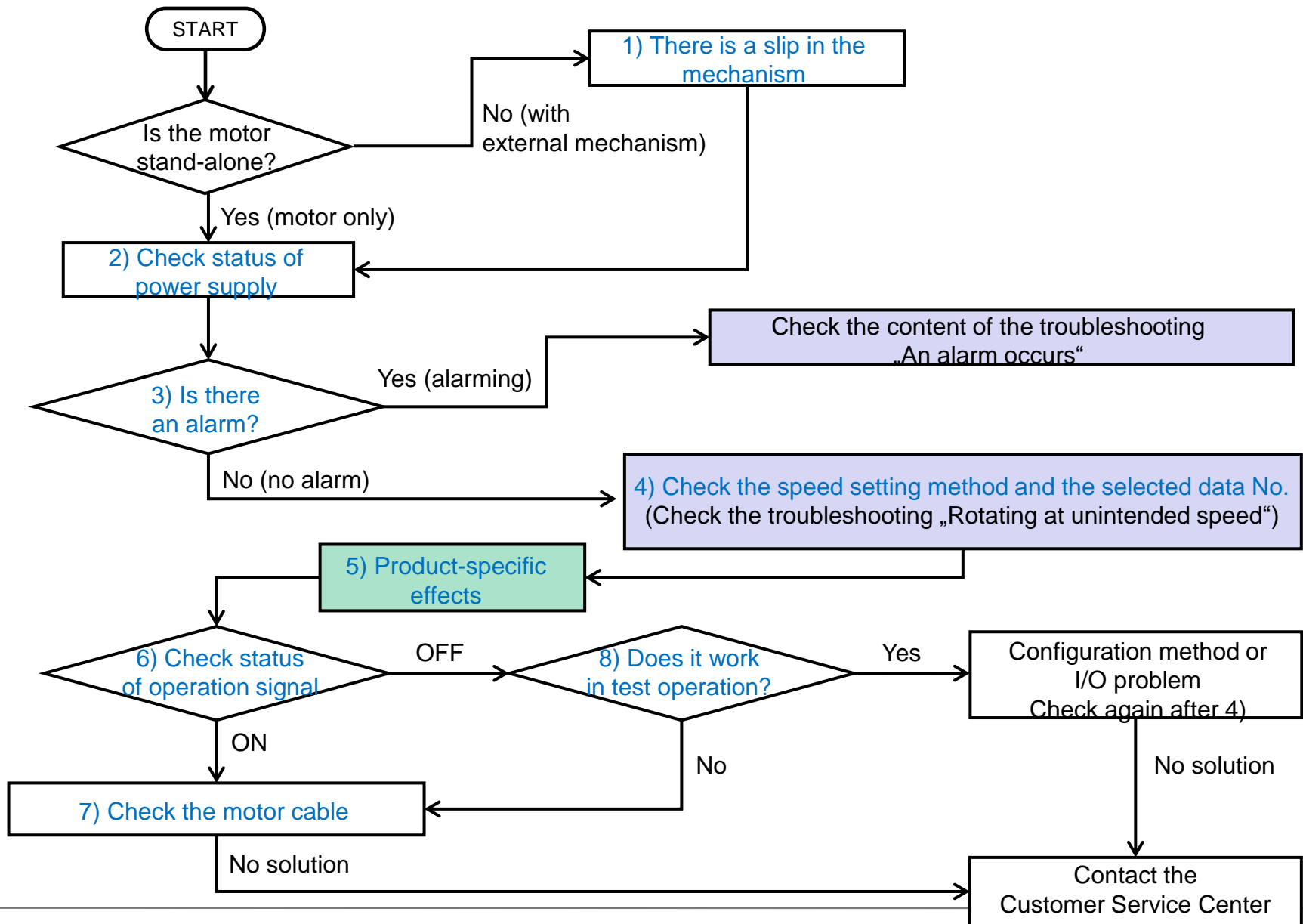
Orientalmotor

If the motor doesn't run, the cause could be

1) There is a slip in the mechanism.
2) The power is not turned on*.
3) An alarm is generated.
4) The setting method of operation data is not the intended content.
5) Product-specific effects*.
6) The input signal is not in the proper state*.
7) Abnormality in the wiring of the motor cable (broken wire, wrong insertion)*.
8) Does it operate by test operation or teaching remote operation?

* Occurs most often at start-up or when replacing the driver.

START

Is the motor stand-alone?

No (with external mechanism)

1) There is a slip in the mechanism

Yes (motor only)

2) Check status of power supply

Check the content of the troubleshooting „An alarm occurs"

Yes (alarming)

3) Is there an alarm?

No (no alarm)

4) Check the speed setting method and the selected data No. (Check the troubleshooting „Rotating at unintended speed")

5) Product-specific effects

6) Check status of operation signal

OFF

8) Does it work in test operation?

Yes

Configuration method or I/O problem Check again after 4)

ON

No

7) Check the motor cable

No solution

No solution

Contact the Customer Service Center

Problem: The motor doesn't run

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1) There is a slip in the mechanism

If the device does not work or stops, the motor itself may be normal, but the mechanism may be the cause of the failure.
First, please check the motor output shaft and see if the motor output shaft is rotating.
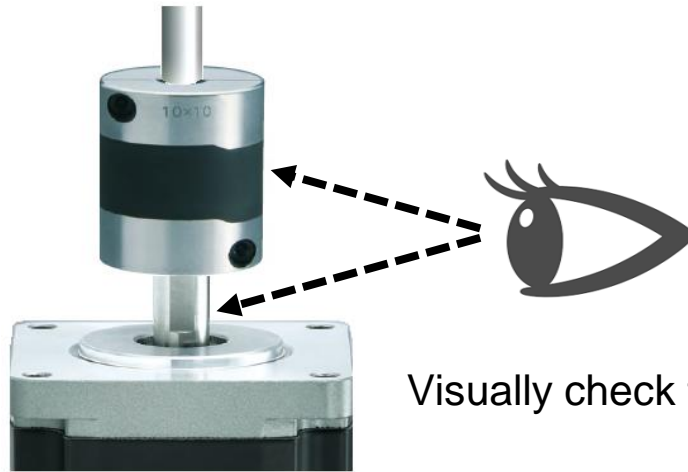
Visually check the condition of the motor output shaft

If the output shaft of the motor is rotating
Please check the mechanism. It may be a problem in the mechanism, such as a loose fastening part or a missing key.

In case where it is difficult to distinguish or cannot be confirmed
If the motor is built into the equipment and cannot be checked, or if the gears of the motor being used have a high reduction ratio, or if the motor is not being used.
If the speed is extremely low and difficult to determine, use the monitor function to check the rotation speed of the motor shaft.
The monitoring method varies depending on the series (see next page).

1) There is a slip in the mechanism

How to monitor each series

	BMU	BLE2	BLH			BLV
			Analogue	Digital	RS-485	
Control Panel	●	●	-	-	-	-
MEXE02 Support Software	-	● (USB-mini-B)	-	● (USB-mini-B)	● (USB-mini-B)	● (special cable)
OPX-2A Data Setting Device	-	-	-	-	-	●
Via Network	-	-	-	-	●	●

For details of each checking method please refer to the operating manual of each series.
Dedicated communication cable: CC05IF-USB.

1) There is a slip in the mechanism

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Example: BLE2 Series (MEXE02 Status Monitor)

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2) The power is not turned on

If the motor does not run, check if the driver power is turned on.
You can check whether the power is supplied to the driver from the LED status of the driver or the operation panel.
(LED names and placement vary depending on the series. Please refer to the operating manual of each series for details.)

Example: BLE2 Series
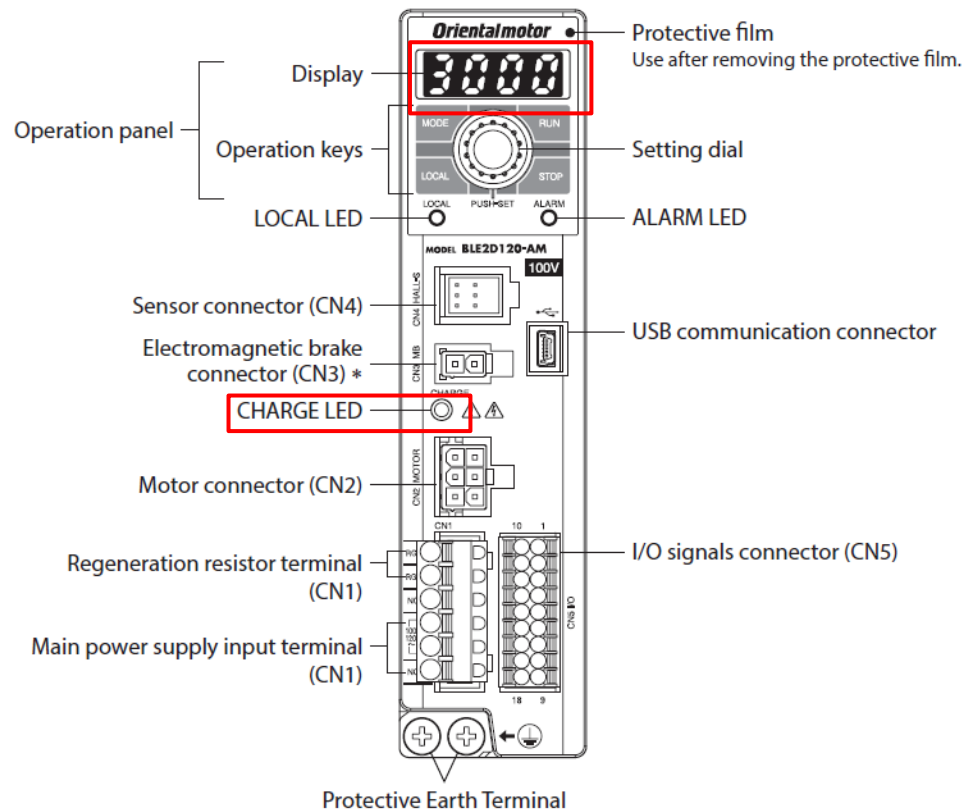
2) The power is not turned on

Please check the following information.

(1) Is the power connector disconnected?
(2) Check that circuit breakers and other wiring devices are turned on and that there are no problems with the main power supply.
(3) Is the position of the connected terminal correct (e.g., is the top and bottom not reversed?)?
(4) Is the power cable inserted normally into the power connector, and is there any defect such as crimping?
(5) Is the power cable disconnected? If it is extended, remove the extension to see if it improves the situation.

If the LED does not light up when all the above conditions are fulfilled:

⬇

Please contact our Customer Service Center.

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* Occurs most often at start-up or when replacing the driver.

3) An alarm is generated

The driver is equipped with an alarm function to protect the driver from various troubles.
If an alarm is present, the motor will not run.
Check for alarms in one of the following ways:

	BMU	BLE2	BLH			BLV
			Analogue	Digital	RS-485	
Alarm Output	●	●	●	●	●	●
LED	-	-	●	●	●	●
Control Panel	●	●	-	-	-	-
MEXE02 Support Software	-	● (USB-mini-B)	-	● (USB-mini-B)	● (USB-mini-B)	● (special cable)
OPX-2A Data Setting Device	-	-	-	-	-	●
Via Network	-	-	-	-	●	●

If an alarm has occurred, check the details of the alarm that has occurred and remove the cause before clearing it.
For more information on each alarm, refer to the operating manual and troubleshooting "Alarm occurs".
Dedicated communication cable: CC05IF-USB.

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4) The setting method of the operation data is not the intended content

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If the selected data No. or speed setting method is different from the intended one, the motor may not move.
(e.g. speed was set digitally, but the parameter of the setting method was set to external analog).

If the motor does not run, please check the following two points.
   1) The selected data No.
   2) How to set the speed

How to set the rotation speed for each series (default value):

| Data No. | BLE2 | BMU | BLH | | | BLV |
			Analogue	Digital	RS-485	
0	Digital setting	Digital setting	External Analog	External Analog	Digital setting	VR1
1	Digital setting	Digital setting	VR1	VR1	Digital setting	External Analog
2~	Digital setting	Digital setting	-	Digital setting	Digital setting	Digital setting

The setting method cannot be changed for the BMU Series and BLH Series (analog setting type).
VR1: Internal setting unit

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* Occurs most often at start-up or when replacing the driver.

5) Product-specific effects: BMU Series

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The BMU Series can be operated with only the slide switch (operation switch) on the front of the driver in the factory default setting, but it can also be operated with the slide switch on the rear of the driver.
You can use I/O by changing the parameters (refer to the instruction manual for how to change the parameters).

When operating with I/O, the slide switch must be in the RUN state (with the switch to the right). The motor is operated by turning on either the FWD input or REV input.
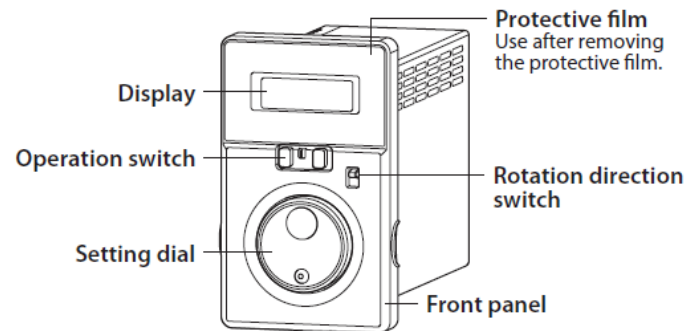
If it does not work by I/O control, please check the status of input signal and slide switch by I/O monitor.
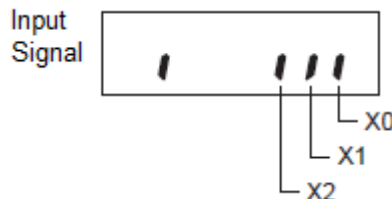
Monitor mode ⇒ I/O monitor ⇒ Input monitor

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The BLH Series I/Os are C-MOS (5V).
Also, please note that the BLH Series does not support source connection (input signal will not respond).

5) Product-specific effects: BLV Series

In the BLV Series, the following three wiring methods are supported for I/O wiring.
 Internal power supply
 External power supply - Sink connection
 External power supply - Source connection

When changing the connection method, it is also necessary to change the DIP-SW (SW1-No.3) (After the change, it is reflected by reconnecting the power supply).

Basic function switch (SW1)
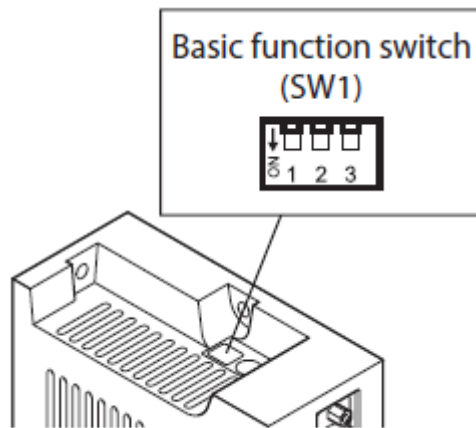
SW1-No. 3
ON: Source logic
OFF: Sink logic

If the DIP-SW setting does not match the actual wiring, the I/O will not respond.
The factory default setting is sink logic (OFF).

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6) The input signal is not in the proper state*.
7) Abnormality in the wiring of the motor cable (broken wire, wrong insertion)*.
8) Does it operate by test operation or teaching remote operation?

* Occurs most often at start-up or when replacing the driver.

6) The input signal is not in the proper state

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If the motor does not run, the state of the input signal may not be appropriate, such as the operation signal is not turned on.
First, check the status of each signal using the following methods (I/O test, I/O monitor).

	BMU	BLE2	BLH			BLV
			Analogue	Digital	RS-485	
Control Panel	●	●	-	●	●	-
MEXE02 Support Software	-	● (USB-mini-B)	-	● (USB-mini-B)	● (USB-mini-B)	● (special cable)
OPX-2A Data Setting Device	-	-	-	-	-	●
Via Network	-	-	-	-	●	●

Dedicated communication cable: CC05IF-USB.

Also please check the following settings:
Contact setting of operation input signal (reversing, non-reversing)
Operation input method (2-wire method, 3-wire method)
Allocation of I/O Inputs

6) The input signal is not in the proper state

Example: BLE2 Series (MEXE02)

D-I/O Monitor

D-I/O refers to direct I/O.
The ON/OFF status of I/O signals is displayed as follows:

Display	Direct I/O
ON (Green)	conductive state
OFF (White)	non-conductive state

Internal I/O Monitor

The internal I/O monitor can monitor the internal status of all I/O signals. You can also check signals that are not assigned to direct I/O.

Display	Internal signal condition
ON (Green)	active state
OFF (White)	inactive state

6) The input signal is not in the proper state

If the operation input signal is not turned ON, the following may occur*:

(1) Wiring error (GND connection point is different, wrong connection point, etc.)
(2) Cable disconnection, poor connection or forgotten connection
(3) Wrong voltage of signal power supply
(4) Driver damage

A particularly common problem is wiring errors. Wiring varies depending on the I/O output of the host master, connection method, etc.
An example of checking with an external power supply (sink/source) is explained on the next page.
Check the specifications of the host master and confirm the wiring (NPN / PNP / Sink / Source).

Also, when teaching, remote operation or I/O test is being executed, the operation input signal will be invalid, so please finish the operation before running it with an external signal.

*The explanation of the case where I/O is input via network is not shown here.
If this does not work when running on a network, please contact the Customer Service Center.

6) The input signal is not in the proper state:
Check wiring (external power supply – sink connection)

(1) Set the controller to a state in which no signal is output and measure the voltage at the points shown in the table below with a tester or the like.
   (Measure the voltage between the target pin of the driver and GND of the controller. Check the I/O GND of the controller in the instruction manual of the controller.)

	BMU (max. 120 W)	BMU (min. 200 W)	BLE2	BLV
+ Side	x0 (8 pin)	IN0 (5 pin)	IN0 (2 pin)	IN0 (1 pin)
- Side	0 V of the controller	0 V of the controller	0 V of the controller	0 V of the controller

When the measurement result is 24 V ⇒ Go to (2).
If the measurement result is other than 24V ⇒ Check the wiring to the voltage supply source (+24V).
Measurement should be performed on the driver side, not on the controller side.
Network-compatible products are not described here.
The BLH Series is driven by an internal power supply and is not described here.
For DC input products, the I/O GND of the controller and the I/O GND of the driver should be common.

6) The input signal is not in the proper state:
Check wiring (external power supply – sink connection)

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(2) Switch to the state in which the signal is output from the controller and measure the voltage at the points shown in the table below with a tester or the like.
(Measre the same area as in (1)).

	BMU (max. 120 W)	BMU (min. 200 W)	BLE2	BLV
+ Side	x0 (8 pin)	IN0 (5 pin)	IN0 (2 pin)	IN0 (1 pin)
- Side	0 V of the controller	0 V of the controller	0 V of the controller	0 V of the controller

If the measurement result is 0 V ⇒ Wiring is likely to be correct. Please contact the Customer Service Center.
If the measurement result is other than 0 V ⇒ Check the wiring between the driver target pin and the output terminal of the controller being used.
Check the output method of the controller (is it the PNP method?)
Is the GND of the power supply source and the I/O GND of the controller common?

Measurement should be performed on the driver side, not on the high-level master side.
Network-compatible products are not described here.
The BLH is driven by an internal power supply and is not described here.
For DC input products, the I/O GND of the host master and the I/O GND of the driver should be common.

6) The input signal is not in the proper state:
Check wiring (external power supply – sink connection)

Measurement image:
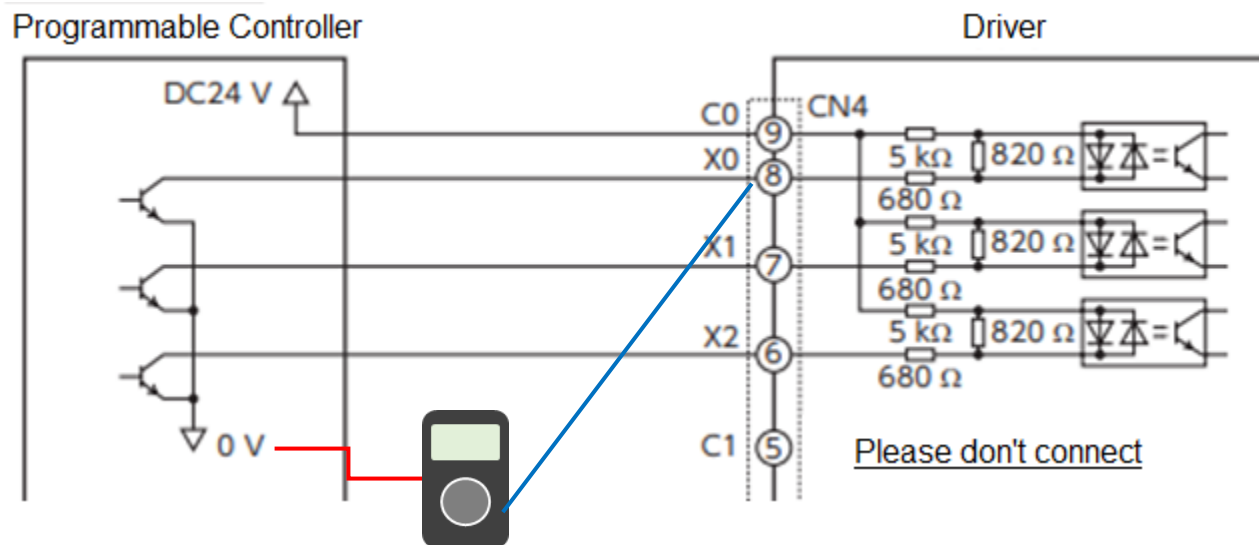
6) The input signal is not in the proper state:
Check wiring (external power supply – source connection)

(1) Set the controller to a state in which no signals are output and measure the voltage at the points shown in the figure below with a tester or the like.

   (Measure the voltage between the target pin of the driver and the I/O power supply of the controller. Check the I/O power supply of the controller in the instruction manual of the controller.)

	BMU (max. 120 W)	BMU (min. 200 W)	BLE2	BLV
+ Side	24 V of the controller	24 V of the controller	24 V of the controller	24 V of the controller
- Side	x0 (8 pin)	IN0 (5 pin)	IN0 (2 pin)	IN0 (1 pin)

When the measurement result is 24 V ⇒ Go to (2).
If the measurement result is other than 24 V ⇒ Check the wiring between the driver target pin and the controller I/O GND.

Measurement should be performed on the driver side, not on the controller side.
Network-compatible products are not described here.
The BLH Series is driven by an internal power supply and is not described here.
For DC input products, the I/O GND of the controller and the I/O GND of the driver should be common.

6) The input signal is not in the proper state: Check wiring (external power supply – source connection)

(2) Switch to the state in which the signal is output from the controller and measure the voltage at the points shown in the figure below with a tester or the like.
   (Measure the same area as in (1))

	BMU (max. 120 W)	BMU (min. 200 W)	BLE2	BLV
+ Side	24 V of the controller	24 V of the controller	24 V of the controller	24 V of the controller
- Side	x0 (8 pin)	IN0 (5 pin)	IN0 (2 pin)	IN0 (1 pin)

If the measurement result is 0 V ⇒ Wiring is likely to be correct. Please contact the Customer Service Center.
If the measurement result is other than 0 V ⇒ Check the wiring between the driver target pin and the output terminal of the controller being used.
Check the output method of the controller (isn't the NPN method used?)

Measurement should be performed on the driver side, not on the controller side.
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The BLH Series is driven by an internal power supply and is not described here.
For DC input products, the I/O GND of the controller and the I/O GND of the driver should be common.

6) The input signal is not in the proper state:
Check wiring (external power supply – source connection)

Measurement image:
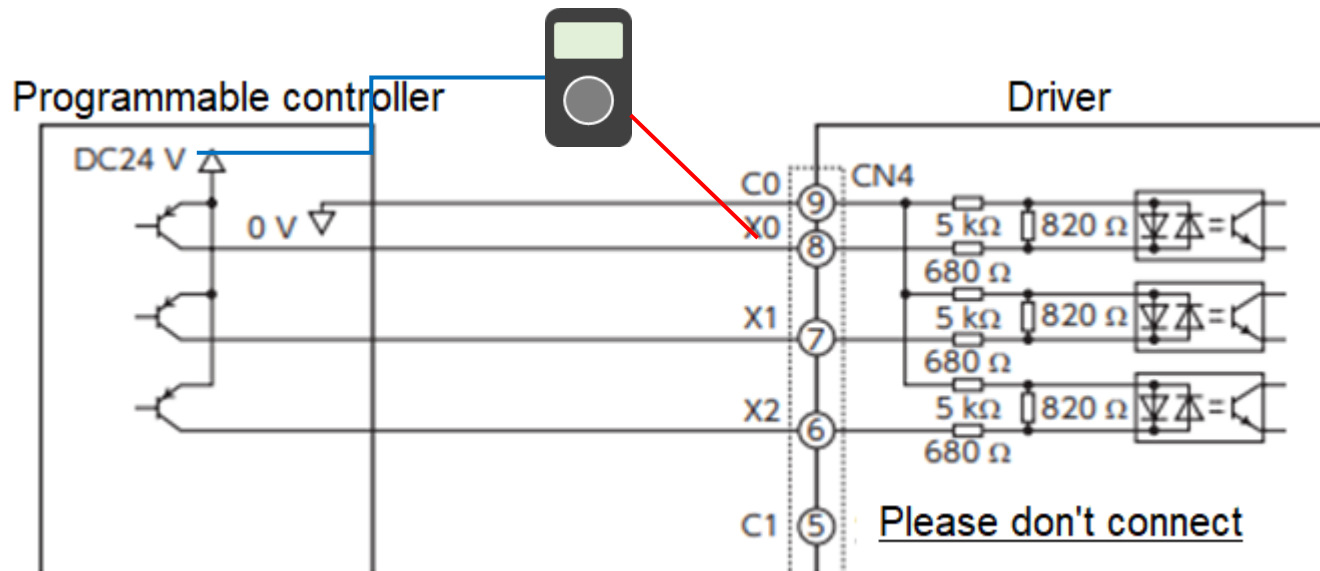
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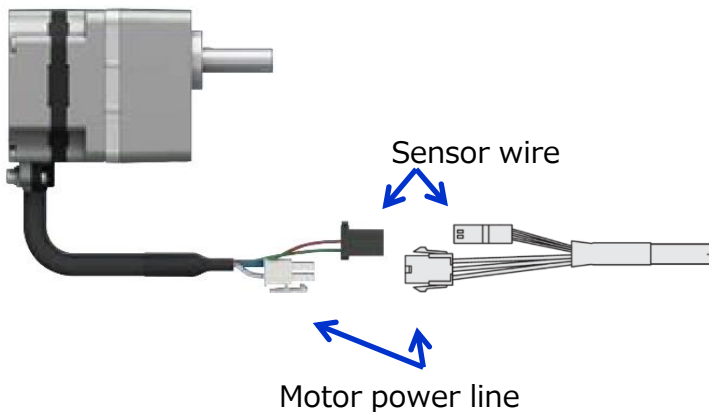
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8) Does it operate by test operation or teaching remote operation?

* Occurs most often at start-up or when replacing the driver.

7) Abnormality in the wiring of the motor cable (broken wire, wrong insertion)

If the motor does not run, make sure you have not forgotten to connect the motor power wire.

Example: For BLM motors (cable type)

Sensor wire

Motor power line

Example: BLE2 Series

Oriental motor — Protective film
Use after removing the protective film.

Display

Operation panel

Operation keys — Setting dial

LOCAL LED — ALARM LED

MODEL BLE2D120-AM   100V

Sensor connector (CN4)

Electromagnetic brake connector (CN3) ∗ — USB communication connector

CHARGE LED

Motor connector (CN2)

Regeneration resistor terminal (CN1) — I/O signals connector (CN5)

Main power supply input terminal (CN1)

Protective Earth Terminal

The alarm will not occur even if the motor power line is not connected (except for some series).
If the sensor wire is disconnected, a sensor error alarm occurs.
When using multiple units, make sure that the motor you are checking and the driver you have set are connected.
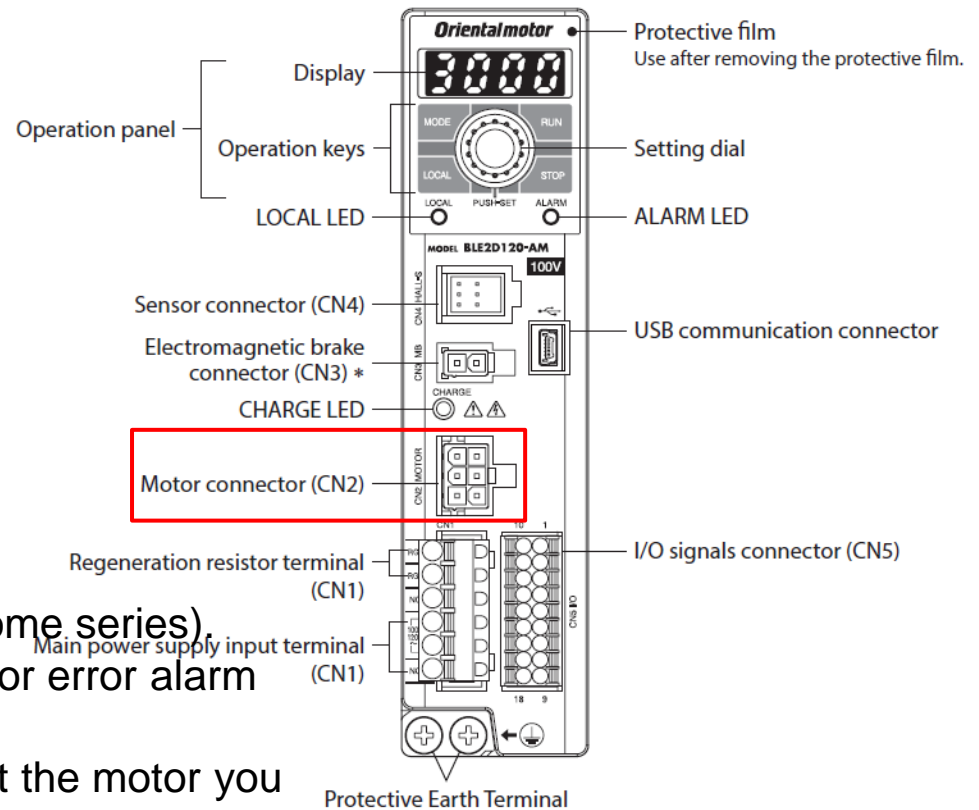
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8) Does it operate by test operation or teaching mode operation?

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If the motor does not run with an external input signal, test operation from the driver's operation panel or check if it works by teaching remote operation from the support software "MEXE02".
In doing so, all input and output signal connectors must be disconnected, and the driver must be equipped with a power supply, motor, and if it is MEXE02, please check it with PC and driver connected by communication cable.
Note that the motor is expected to operate, and the device may move suddenly.
Make sure that there is no danger of malfunction, damage, or injury before doing so.

	BMU	BLE2	BLH			BLV
			Analogue	Digital	RS-485	
Control Panel	●	●	-	●	●	-
MEXE02 Support Software	-	● (USB-mini-B)	-	● (USB-mini-B)	● (USB-mini-B)	● (special cable)
OPX-2A Data Setting Device	-	-	-	-	-	●
Via Network	-	-	-	-	●	●

Dedicated communication cable: CC05IF-USB.

8) Does it operate by test operation or teaching mode operation?

Example: BLE2 Series

If the contents of ① to ⑧ are all OK and the motor does not move, the driver may be damaged.
Confirm the series/product name and condition of the motor/driver being used, and contact our Customer Service Center.

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Contact us

Please feel free to contact us with any questions you may have about
motors, how to select a product, delivery times, prices, orders, etc.

All countries except below: Tel. 00 800 22556622, info@orientalmotor.de
UK/Ireland: Tel. 01256-347090, info@oriental-motor.co.uk
France: Tel. 01 47 86 97 50, info@orientalmotor.fr
Italy: Tel. 02 9390 6346, info@orientalmotor.it