HIOS®

Operation Box

BLOP-AY01

Operation Manual

Table of Contents

Important Safety Instructions

Before using the device, please carefully read this document to use it correctly. As warnings, cautions and important notes written in this document are for preventing injury to users and other people, and damage to property, please make sure to observe them. Please note that HIOS is not liable for any damages caused as a result of negligence of such warnings, cautions and important notes while using, improper usage, or repair or alteration of the device by persons other than HIOS or a third party specified by HIOS.

WARNING

Indicates a warning concerning operations that may lead to death or injury to persons if not performed correctly. To use the machine safely, always pay attention to these warnings.

CAUTION

Indicates a caution concerning operations that may lead to injury to persons if not performed correctly. To use the machine safely, always pay attention to these cautions.

IMPORTANT

Indicates operational requirements and restrictions. Be sure to read these items carefully to operate the machine correctly, and avoid damage to the machine or property.

Installation

To use this device safely and comfortably, carefully read the following precautions and install the machine in an appropriate location.

WARNING

- Do not install it where there is a risk of fire or electric shock:
- A place with high humidity or excessive dust
- Outdoor or a place exposed to direct sunlight
- A place with high temperature
- A place with flame
- A place close to flammable solvents such as alcohol and thinner

Other Warnings

- Do not connect the device to anything that is not specified by HIOS. Otherwise, fire or electric shock may be caused.
- Do not put metals like jewelry or containers containing liquid on the device. If such article contacts with any electric component, etc., inside the device, fire or electric shock may be caused.

- Before attaching/detaching replacement parts, etc., please turn off the power of the device and unplug it from the power source. If the power cord is damaged, fire or electric shock may be caused.

CAUTION

Do not install it in the following places:

There is a risk of falling or collapsing, leading to injury.

- Unstable place
- A place with vibrations

Other notes

- When installing the device, do it carefully and slowly so that your hand is not caught between the device and ceiling and/or walls. Otherwise, injury may be caused.

IMPORTANT

Do not install it in the following places:

Otherwise, a malfunction of the device may occur.

- A place where there are extreme fluctuations in temperature and/or humidity.
- Experimental lab, etc., where chemical reactions can occur.
- A place where corrosive and/or toxic gas is likely to be contained in the air.
- A place where distortion and/or sinking is likely to occur due to the weight of the device.

Do not install it in any place where condensation occurs:

If you do any of the following, water droplets (condensation) may occur inside the device, and if you continue using the device in such condition, it may cause sensor failure or a malfunction. Leave the device for a while to adjust it to the ambient temperature and humidity before use.

- When the room is quickly heated
- When the device is moved from a place with low temperature or humidity to a place with high temperature or humidity

Power Supply

WARNING

- Do not use the device with a power supply and voltage other than the ones specified. Otherwise, fire or electric shock may be caused.
- Do not use a power cord other than the supplied one. Otherwise, fire or electric shock may be caused.
- Do not damage, modify, pull, or forcefully bend the power cord. Also, do not put heavy objects on the power cord. Otherwise, fire or electric shock may be caused.
- Do not plug/unplug the power cord with a wet hand. Otherwise, electric shock may be caused.
- Do not plug multiple power cords in one outlet or use an extension cord. Otherwise, fire or electric shock may be caused.
- Do not bundle or tie the power cord. Otherwise, fire or electric shock may be caused.
- Insert the power plug firmly into the outlet. Failure to firmly plug the power cord can result in fire or electric shock.

- If lightning occurs, unplug the power cord from the outlet. Otherwise, fire, electric shock, or a malfunction may be caused.

CAUTION

- Do not place objects around the power plug. It should be disconnected immediately in an emergency.

IMOPRTANT

When connecting the power supply

- If the device is connected to an outlet that has multiple connectors, do not connect other devices to the remaining connectors.
- We recommend to use an outlet wired through an indoor ground fault breaker. Connecting the ground wire of the device can prevent not only electric shock but also fires caused by a combination of certain conditions.

Other notes

- Electrical noise can cause the device to malfunction.

How to Handle the Device

WARNING

- If there is strange noise, smell, heat or smoke, immediately unplug the power cord from the outlet and contact your dealer. Continuing to use it in this condition may result in fire or electric shock.
- Do not disassemble or modify the device. It may cause a malfunction or be subject to legal penalty.
- Do not disassemble or modify accessories. Otherwise, a malfunction of the device may occur.
- Do not allow children to touch power cords, cables, internal components, electrical components, etc. It may cause an accident.
- Do not use flammable spray near the device. If any foreign substances such as gas adhere to the electrical components inside the device, fire or electric shock may be caused.
- When moving the device, make sure to turn off the power before unplugging the power plug. Moving the device without turning off the power can damage the power cord and cause fire or electric shock.

CAUTION

- Do not put heavy objects on the device. The object may collapse or fall down and cause injury.
- If you do not use this unit for a long time, unplug the plug from the outlet for safety.
- Do not wear items with flowing cuffs, gloves, ties, etc. When measuring rotating objects such as screwdrivers, you may get caught in the rotation and suffer from injury or cause damage to the device.
- Wear appropriate clothing for the work. Cover long hair with a cap or other protective gear to ensure safety when working.

IMPORTANT

Other notes

- Do not apply strong impact to this device.

Maintenance and Inspection

WARNING

Clean the device regularly. If dust accumulates, the device may not operate properly. When performing maintenance, be sure to check the following information. If you encounter any operational problems, refer to "Troubleshooting." If this does not solve the problem, or if you think an inspection is necessary, contact your dealer or HIOS.

- Be sure to turn off the power and unplug the power cord from the outlet before cleaning the device. Cleaning without doing this may cause fire or electric shock.
- Periodically unplug the power cord and wipe off dust and dirt with a dry cloth. Dust absorbs moisture and current flows, and that may cause fire.
- Check power cords and plugs periodically for heat, rust, bends, scratches or cracks. Continued use in a damaged condition may cause fire and electric shock.

IMPORTANT

- Do not store the device in a place where temperature and humidity change rapidly and condensation is likely to occur.

Checking Supplied Accessories

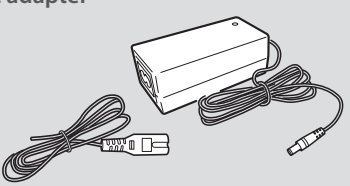
If anything is missing or damaged, please contact the dealer from whom you purchased this device.

Device

Control cord

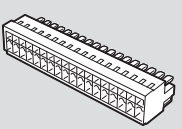
7m

AC adapter



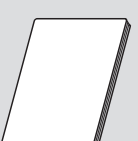
100-240V

Connector

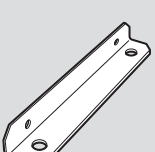


Connector assembly tool

Manual



Bracket



*RS-232C cable is not provided with the device. Please prepare it separately.

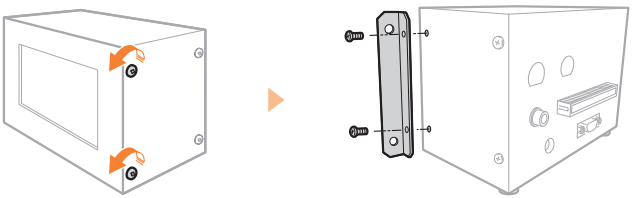
Installation

Installation

To attach the device to a rack, attach the bracket to the side of the device.

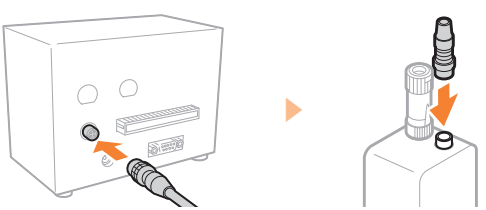
1 Attach the bracket.

- Fixing hole diameter is ⌀5.



Connection

1 Connect the control cord.

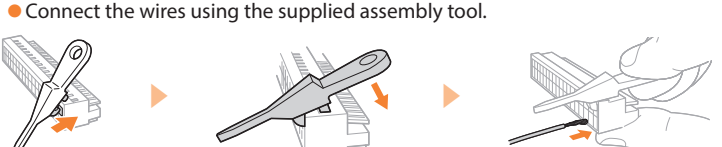


Wiring

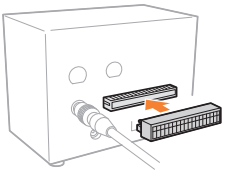
Please prepare a signal line separately.

1 Connect to the connector.

- Connect the wires using the supplied assembly tool.

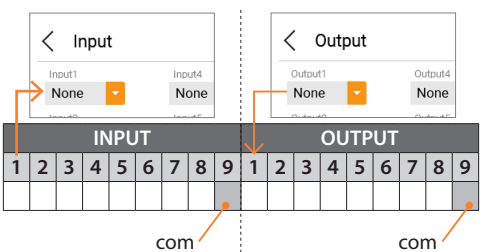


2 Connect the connector to the device.



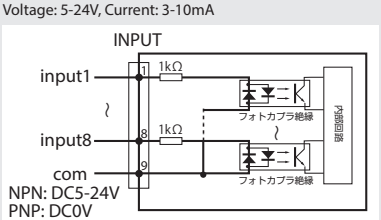
Connector Input/Output

- When a signal is input to INPUT1, the device operates in the mode specified at <Input1>. Do not input more than one signal at a time.
- When the actions specified in <Output1> satisfy the conditions, the signal is output from the OUTPUT1 connector.

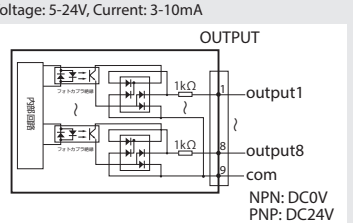


Wiring Diagram

Input terminal: 1-8 pins, Common wire: 9 pin (1kΩ resistor inserted inside each terminal)
Voltage: 5-24V, Current: 3-10mA



Output terminal: 1-8 pins, Common wire: 9 pin (1kΩ resistor inserted inside each terminal)
Voltage: 5-24V, Current: 3-10mA



NPN

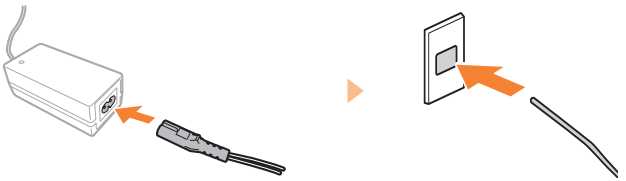
Input: Connect + power supply (5-24 V) to the common wire. It is turned ON by dropping 1-8 pin voltage levels to GND. Output: Connect + power supply (5-24 V) to the common wire. It is turned ON when the voltages of 1-8 pins reach the effective levels.

PNP

Input: Connect the common wire to GND. It is turned ON when the + power (5-24V) is applied to 1-8 pins. Output: Connect the common wire to GND. It is turned ON when voltage levels of 1-8 pins are pulled up to +5-24V and then dropped to GND.

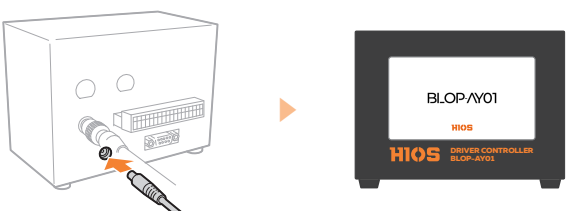
Turning ON the Power

1 Connect the AC adapter to the outlet



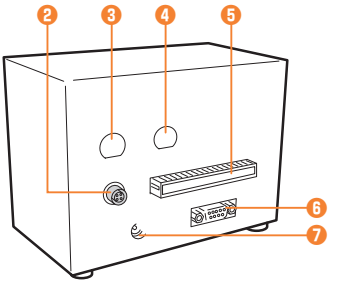
2 Connect the AC adapter to the device

- Power is supplied when connected.



Parts and Their Functions

Front Side



Back Side

1 Touch panel display

For operation settings and message display. Refer to"Use Touch Panel Display" (P.12).

2 Control cord connector

To connect the control cord.

3 Sensor connector for PGFA (for PGFA only)

To connect the PGFA sensor cord.

4 Sensor connector for PG-01 (for PG-01 only)

To connect the PG-01 sensor cord.

5 I/O connector

To connect the I/O cable.

6 RS-232C connector

To connect the RS-232C cable.

7 AC adapter port

To connect the AC adapter.

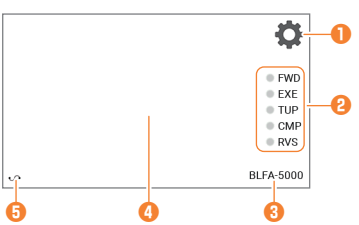
Use Touch Panel Display

The touch panel display allows you to operate the device by directly touching the screen with your finger. In addition to the screen for operating channel settings such as forward and reverse rotation, various settings, text input, operating status, and error messages are displayed.

Cautions when using the touch panel

- Do not press the touch panel too hard. It may be damaged.
- Do not press the touch panel with a pointed object such as a ballpoint pen. The surface may be scratched or damaged.

Home Screen



1

To access screw fastening setting, channel assignment, and other setting menus.

2 Implementation/operation lamp

To indicate the status such as torque increase or completion of action mode by a lamp. It is also lit during normal rotation, reverse rotation, etc.

3 Connected screwdriver

To display the name of the screwdriver that is connected to the device.

4 Display

To display screw fastening judgment result or an error message. You can also make settings by looking at the display.

❺ Connection status icon

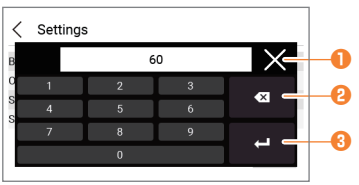
To display the connection status with the screwdriver.

: Connected

: Disconnected

Entering Text

To enter numbers, touch the numeric keypad on the screen.



❶ To close the numeric keypad.

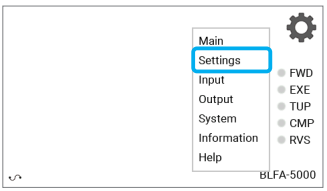
❷ To delete the text just entered.

❸ To confirm the input.

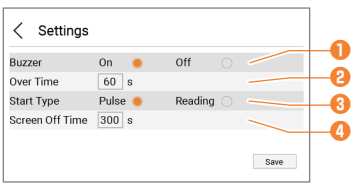
Setting

The device has a variety of settings to make fine adjustments to each setting item. The bold letter items indicate that they are in factory settings.

1 Touch ⚙ ▶ Settings.



Settings Screen



Adjusting the Volume

The device sounds a warning tone in response to various conditions, such as an operation error. You can set these volumes to mute. However, it still sounds for critical errors.

1 Buzzer

On: Sound audible
Off: Mute

Action Mode Forced End Time

To forcibly stop the sound when the set time elapses during action mode operation. If set to 0, no forced stop is performed. When operating in action mode <FWD> or <TMP>, be sure to set the end time.

2 Over Time

0–60

Signal Start

Select either Pulse or Reading as the signal input method.

❸ Start Type

Pulse: Operates with input of 100 mS or more
Reading: Operates during input

Screen Off Setting

When the display is not touched for a specified period of time, the screen is turned off to save energy consumption and reduce display wear. If set to 0, this setting is disabled.

❹ Screen Off Time

0–**300**–900

When the screen doesn't turn off:

- If a critical error occurs, the setting is ignored and a dialog appears on the display.

To deactivate screen off:

Touch the screen.

Set the Input Channel

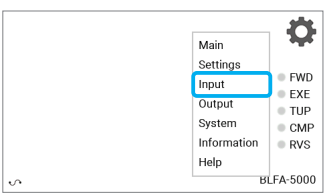
The area where you can save settings for different screw fastening modes is called a channel. The device has eight channels, which you can specify using an external signal to operate the screwdriver.

NOTE

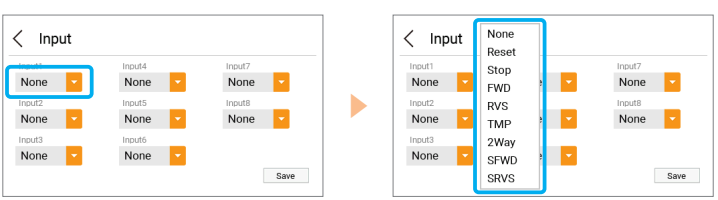
- If you change the parameters of action mode, touch the Save button to save the setting. The change becomes effective after saving.

Basic Operations

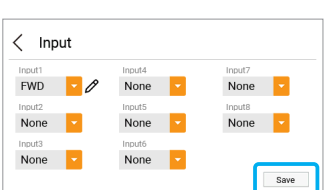
1 Touch ⚙ ▶ Input.



2 Touch Channel ▶ Action.



3 Touch Save.



List of Action Modes

You can assign multiple modes to any channel.
The symbol ✎ is displayed next to a channel in a mode for which detailed settings are available. Touching the button transits to the detailed setting screen.

No.	Action mode	Description
	None	—
❶	Reset	To stop operation and reset error (1 channel only at a time)
❷	Stop	To stop operation (1 channel only at a time)
❸	FWD	Forward rotation, temporary fastening (stop before seating)
❹	RVS	Reverse rotation
❺	TMP	Temporarily fastening (reverse rotation after seating)
❻	2Way	Variable speed + forward rotation
❼	SFWD	Low speed forward rotation (cannot fasten screws)
❽	SRVS	Low speed reverse rotation (cannot fasten screws)

❶ Reset (1 channel only at a time)

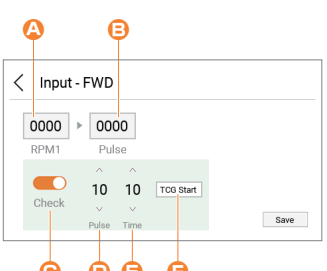
To reset the error display.

❷ Stop (1 channel only at a time)

To stop operation in the action mode.

❸ FWD

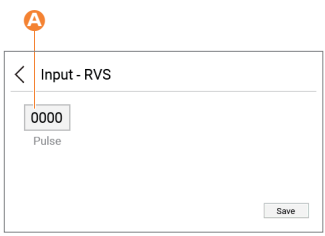
Forward rotation.



Ⓐ RPM1: To specify the rotational speed. If set to 0, it operates at the maximum rotational speed of the connected screwdriver.
Ⓑ Pulse: Forward rotation is performed for the specified number of pulses. If set to 0, it is disabled.
Ⓒ Check: To turn ON/OFF the judgment function. For details of teaching,"Teaching" (P.22).
Ⓓ Pulse: To set threshold of pulse judgment.
Ⓔ Time: To set threshold of operation time judgment. (Only for BLFA)
Ⓕ TCG Start: To transit to the Teaching mode.

4 RVS

Reverse rotation. To rotate at the maximum speed of the connected screwdriver.



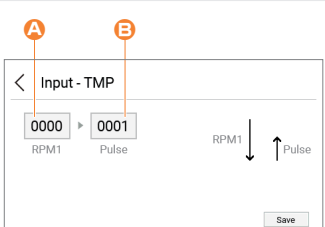
Ⓐ Pulse: To reverse rotation by the number of specified pulses. If set to 0, rotation stops as the momentum is lost.

5 TMP

After seated in forward rotation, reverse rotation is performed by the specified number of pulses.

Caution

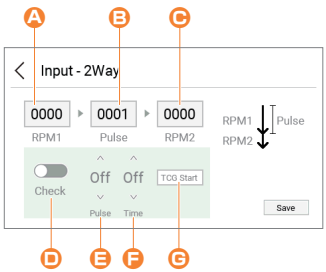
- This mode detects torque up and automatically switches to reverse rotation. If the torque does not increase, set the Over Time parameter in the Settings menu. Refer to"Setting" (P.14).



Ⓐ RPM1: To specify the rotational speed. If set to 0, it operates at the maximum rotational speed of the connected screwdriver.
Ⓑ Pulse: Reverse rotation is performed by the specified number of pulses. This cannot be set to 0.

❻ 2Way

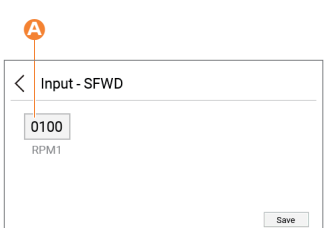
Forward rotation is performed at two different speeds.



Ⓐ RPM1: To specify the rotational speed of the first step. If set to 0, it operates at the maximum rotational speed of the connected screwdriver.
Ⓑ Pulse: The speed changes to the second step after rotation for the specified number of pulses. This cannot be set to 0.
Ⓒ RPM2: To specify the rotational speed of the second step. If set to 0, it operates at the maximum rotational speed of the connected screwdriver.
Ⓓ Check: To turn ON/OFF the judgment function. For details of teaching, see"Teaching" (P.22).
Ⓔ Pulse: To set threshold of pulse judgment.
Ⓕ Time: To set threshold of operation time judgment. (Only for BLFA)
Ⓖ TCG Start: To transit to the Teaching mode.

❼ SFWD (cannot fasten screws)

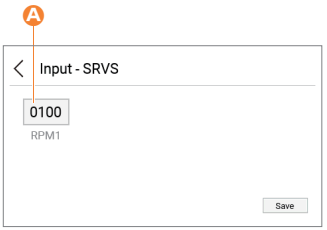
To rotate forward at a lower speed than the normal rotation speed. This can be used in non-load conditions such as when picking up a screw.



Ⓐ RPM1: To specify the slow rotational speed of the connected screwdriver. This cannot be set to 0.

8 SRVS (cannot fasten screws)

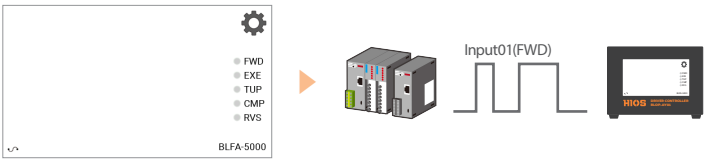
To rotate reverse at a lower speed than the normal rotation speed. This can be used in non-load conditions such as when picking up a screw.



A RPM1: To specify the slow rotational speed of the connected screwdriver. This cannot be set to 0.

Basic Operation of the Device

1 Enter a channel specification signal on the Home screen.



- For information on setting channels and action modes, see "Set the Input Channel" (P.16).
- For details of pass/fail judgment and teaching, see "Teaching" (P.22).

2 Screw fastening is performed and mode is completed.

- The lamp indicates the status during and after operation.
- If the judgment function is enabled, the judgment result is displayed. For more information, see "Setting Pass/Fail Judgment" (P.22).
- When the next action mode is executed or a reset signal is input, the output of the CMP signal and torque-up signal will stop.

CAUTION

- After the operation is completed, input the next signal at an interval of 100 ms or more.

Setting Pass/Fail Judgment

FWD and 2-way modes have a function to judge whether the fastening is successful. Teach the correct number of fastening pulses and the operation time in advance, and judge whether it is within the set reference value to prevent the outflow of defective products.

Teaching

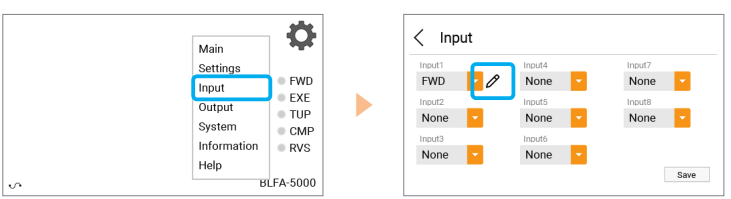
When using PGFA Series:

- When PGFA is connected to this device, the time judgment is automatically grayed out. The time judgment of the PGFA Series is performed by PG-01FA.

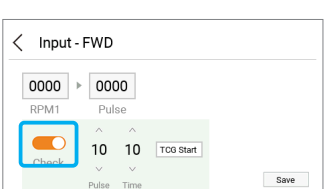
Before teaching

- It is recommended to set the channel to pick up the screw data.

1 Touch ⚙ ▶ Input ▶ Optional channel ▶ FWD or ✎ on the side of 2Way.



2 Touch Check.

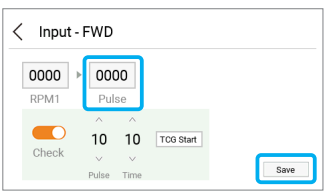


3 Touch the Pulse and Time up/down buttons.

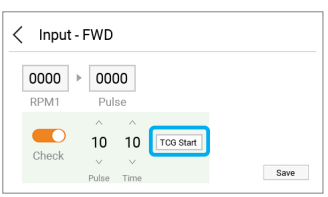
- If you specify a value other than Off, the judgment category is enabled.
- You can choose the threshold from 5%/10%15%/20%/25%/30%.

4 Touch Save.

- Make sure that Pulse is set to 0.

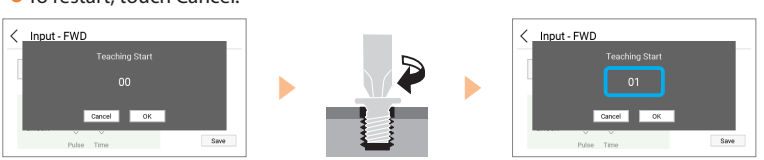


5 Touch TCG Start.

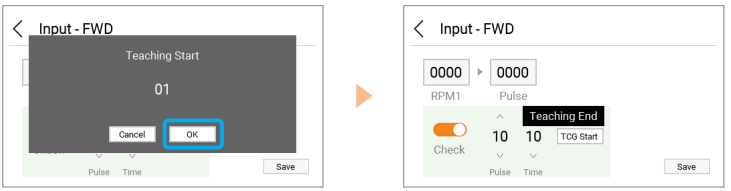


6 Input an external signal to the currently selected channel.

- The number of teaching times is counted each time torque is increased.
- The more times you teach, variations are more leveled out.
- To restart, touch Cancel.

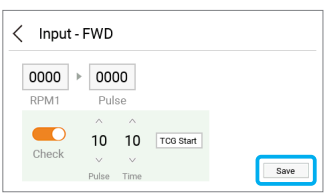


6 Touch OK.

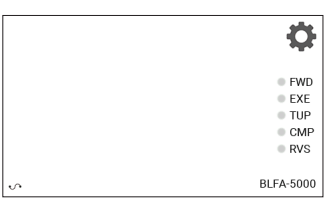


7 Touch Save.

- The judgment threshold is confirmed.
- Details of the judgment value can be checked from the serial communication output.

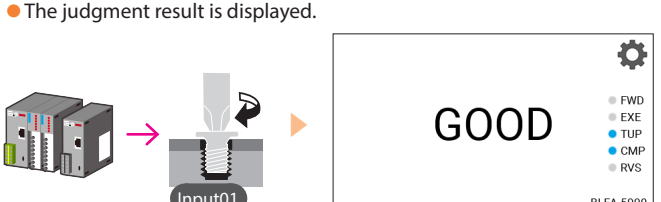


8 Return to the Home screen.



9 Input a signal to the set channel.

- The judgment result is displayed.



Judgment Threshold

The judgment value is set by detecting the minimum and maximum values during teaching. The minimum and maximum values extend the acceptance range by the threshold as a factor. Refer to"Data Input/Output" (P.28) for details such as serial communication commands.

Teaching Data in Serial Communication

```
-> I,Setting Change<LF>
-> I,TCG start<LF>
-> I,FWD<LF>
-> F:TUP,P001,0156,T001,0151<LF>
-> I,FWD<LF>
-> F:TUP,P002,0158,T002,0153<LF>
-> I,FWD<LF>
-> F:TUP,P003,0159,T003,0153<LF>
-> I,FWD<LF>
-> F:TUP,P004,0157,T004,0152<LF>
-> I,FWD<LF>
-> F:TUP,P005,0157,T005,0152<LF>
-> I,TCG end<LF>
->TC6,149,156,159,166,5,144,151,153,160,5<LF>I,Setting Change<LF>
```

Minimum pulse during teaching

Maximum pulse during teaching

Threshold factors are applied to the min and the max values.

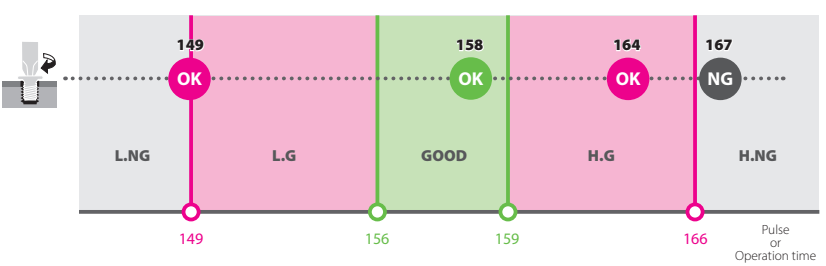
Pulse judgment threshold factor

Pulse teaching data

Time teaching data

Concept of Judgment Threshold After Teaching

If NONE is output as the judgment result in the serial communication, the judgment function is enabled and <Pulse> and <Time> are set to Off.

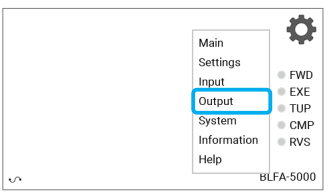


Set the Output Channel

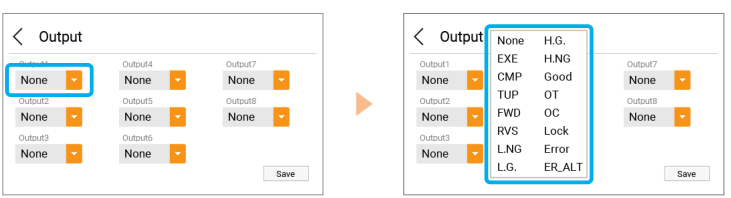
You can specify a signal as an output channel to output the status and results. Not only torque up and action mode operation, but also fastening pass/fail results can be output.

Assign to Channels

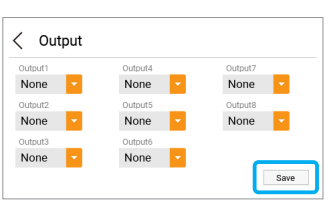
1 Touch ⚙ ▶ Output.



2 Touch Optional channel ▶ Action.



3 Touch Save.



List of Actions

You can assign multiple actions to any channel. Resetting stops output.

No.	Action	Description
	None	—
❶	EXE	Screwdriver operating
❷	CMP	Mode operation complete
❸	TUP	Torque up
❹	FWD	Rotating forward
❺	RVS	Rotating reverse
❻	L.NG	NG: The judgment result is less than the lower limit.
❼	L.G	OK: The judgment result is at the lower limit.
❽	H.G	OK: The judgment result is at the upper limit.
❾	H.NG	NG: The judgment result is more than the upper limit.
❿	Good	OK: The judgment result is within the upper and lower limits.
⓫	OT	Set overtime elapsed.
⓬	OC	A current exceeding a specified value is applied to the screwdriver.
⓭	Lock	The screwdriver cannot rotate for a certain period of time.
⓮	Error	Error *Indicates a serious condition that requires repair or is likely to cause internal equipment failure.
⓯	ER_ART	Error or alert *The alert is at a mild level and can be resolved by sending a reset signal or reviewing the device settings.

Data Input/Output

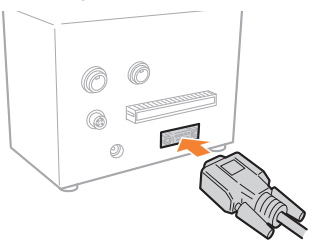
The status and operation of the device, such as work data, setting change, and mode, can be output via serial communication. Parameter changes and screwdriver operations can also be controlled via serial communication.

Connect RS-232C

RS-232C cable is not provided with the device. Please prepare it separately.

1 Connect the cable to the 232C port.

- Check the COM port when connecting to a Windows PC. Right-click the [Start] button ▶ [Device Manager] ▶ [Ports (COM and LPT)] and check the connected serial port.



About Send/Receive Data

When using general serial communication tools, PLC, etc., refer to the following setting items.

Communication Setting Parameters

Item	Communication parameters
Baud rate	38,400 bps
Data length	8 bit
Stop bit	1 bit
Parity	N/A
CTS/RTS control	N/A

Item	Communication parameters
Format	ASCII
Suffix	LF (¥n)

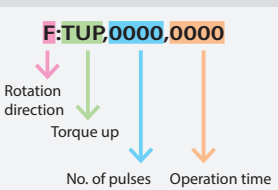
Screwdriver Forward/Reverse Rotation Message

The unit of time is 10mS.

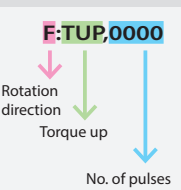
Message	Description
I,FWD	Action mode <FWD> running
I,RVS	Action mode <RVS> running
I,TMP	Action mode <TMP> running
I,2WAY	Action mode <2Way> running
I,SFWD	Action mode <SFWD> running
I,SRVS	Action mode <SRVS> running
I,Reset	Action mode <Reset> running
I,Reset stop OK	Action mode <Reset> ran and stopped
I,Stop	Signal input is turned OFF when the action mode <Stop> is running or the start method is set to Reading.
I,Stop OK	Signal input is turned OFF and the device stops operating when the action mode <Stop> is running or the start method is set to Reading.

❶ Torque up/No judgment

BLFA

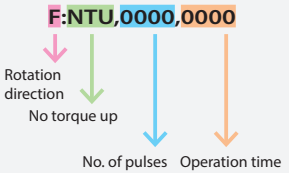


PGFA

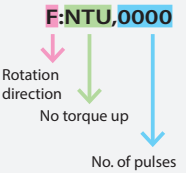


❷ No torque up/No judgment

BLFA



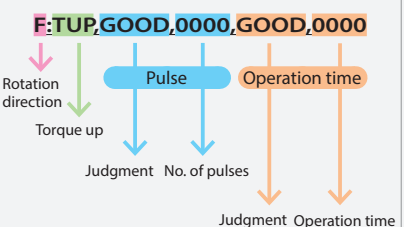
PGFA



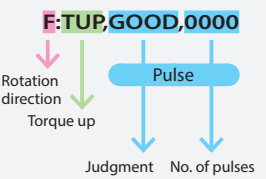
❸ Torque up/Judgment

For details of judgment and thresholds, see "Judgment Threshold" (P.25). The judgment should be L.NG, L.G, GOOD, H.G, H.NG, or NONE.

BLFA

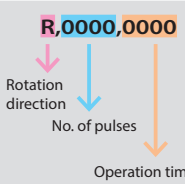


PGFA

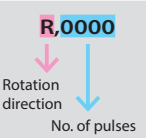


❹ Reverse rotation

BLFA



PGFA



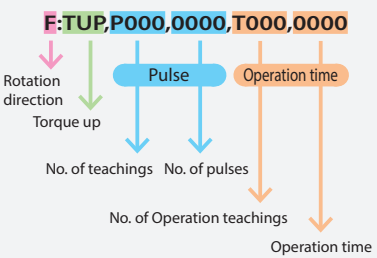
Message While Teaching

Message	Description
I,TCG start	Teaching start
I,TCG cancel	Teaching cancel Even if you touch OK without increasing the torque during teaching, this message is output.
I,TCG end	Teaching end

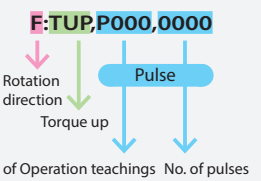
❶ n times of teaching

After 99 times of teaching, the number of teachings is displayed as <PNON><TNON>.

BLFA

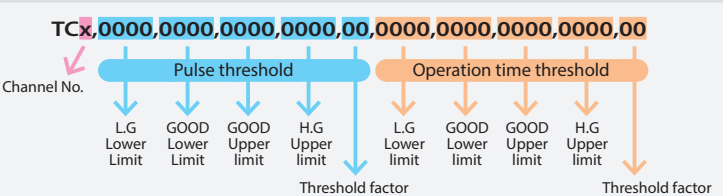


PGFA

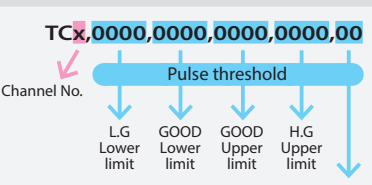


❷ Save channel after teaching

BLFA



PGFA



System-Related Messages

Message	Description
I,Driver Type,XXXX-0000	Screwdriver type upon connection
I,Driver S/N,XXXXXXXXXXXXX	Screwdriver serial number upon connection
W,DOF	The screwdriver is not connected or is turned off. This is output repeatedly until the screwdriver is connected.
I,Setting Change	Setting changed.
I,Date and Time set	Date of System menu changed.
W,TUO	Accumulated number of torque ups reached 1 million times. This is output each time there is a torque up thereafter.
I,BLOP-AY01 S/N, XXXXXXXXXXXX	The device is turned on.
A,OVC	Overcurrent detected.
A,LOC	Screwdriver motor lock detected.
A,OVT	Overtime.
A,30V	The screwdriver's controller voltage switch is set to Low.
A,DCL	The current (torque) at the time of torque up is much lower than the teaching value.
E,XXX	Error message. When this message is displayed, contact HIOS.

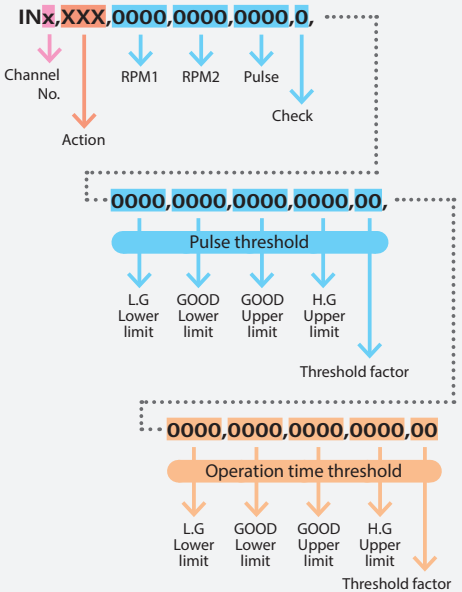
Command

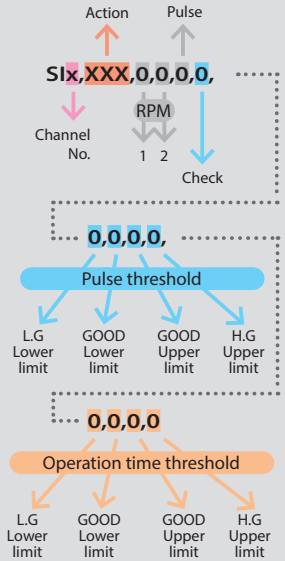
You can check the status of the device and operate the screwdriver.

Cautions

- This command is accepted when the screwdriver is stopped and the Home screen is displayed.
  * Excluding <RST><STP>.
- If ERR is returned after sending a command, check the device status and command syntax.

Send command	Response command
RST	**OK** Reset input.
STP	**OK** Stop input.
VER	**VxxLyy** Device version information output.
RTM	**YYYY/MM/DD hh:mm:ss** Device date information output (YYYY/MM/DD hh:mm:ss)
WTM,YYYY/MM/DD, hh:mm:ss	**OK** Device date change (YYYY/MM/DD hh:mm:ss)
RSR	**S,xxxx** Device's serial No. output.
RDS	**S,xxxx** Screwdriver serial No. output.

Send command	Response command
RIN	 All channel settings of the device are output in batch. Parameters without items are output as 0. For PGFA, data related to the operation time is not output. ● Check=0 (judgment function disabled) or 1 (judgment function enabled) ● If the threshold factor is 99, the setting has been changed in UART mode.
ROU	**xxx,xxx,xxx,xxx,xxx,xxx,xxx,xxx** Output settings of the device are output in batch. From left to right: output 1→ 8.
INx	**OK** Operates the screwdriver by specifying a channel. x=Channel No.

Send command	Response command
	**OK** Input channel setting change. This is not saved. After restarting, the parameters before the change are restored. For details of action modes, see"List of Action Modes" (P.17). ● Check=0 (judgment function disabled) or 1 (judgment function enabled) ● Specify 0 for a setting item that does not exist in the mode. **⚠ CAUTION** ● When you use the SI command, the unit will switch to UART Setting Mode. In UART, you will no longer be able to operate the unit from the display. If you want to operate the unit from the display, restart the unit. ● Specify the operation time threshold even when using PGFA.
	**OK** Output channel setting change. This is not saved. After restarting, the setting before the change is restored. For details of the actions, see"List of Actions" (P.27).

Maintenance

This section explains maintenance of the device and measuring jigs.
To prevent deterioration of accuracy and ensure comfortable and safe operation, periodically clean the device. Please check the safety precautions before maintenance "Important Safety Instructions" (P.03).
Be sure to turn off the power and unplug the power cord from the outlet when cleaning the device. Otherwise, fire or electric shock may be caused.

Main Body

Wipe the surface of the device periodically to keep it clean.

1 Turn off the power and unplug the power cord from the outlet.

2 Wipe the surface of the device.

- Wipe it gently with a soft dry cloth.

3 Plug the power cord into the outlet and turn on the power.

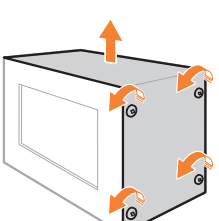
Replace the Battery

The device has a built-in coin-type battery to save date and time. It helps you record the date and time when the screwdriver encountered a critical error.
If the set date and time are not saved, replace the battery. Prepare a CR2032-type coin cell battery separately.

CAUTION

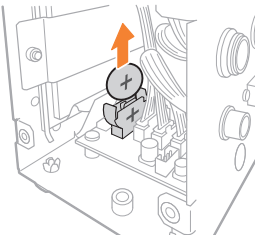
- Turn off the power before replacing the battery.

1 Open the operation box.



2 Replace the battery.

- Place the battery in the correct plus/minus position.



About disposal of a battery

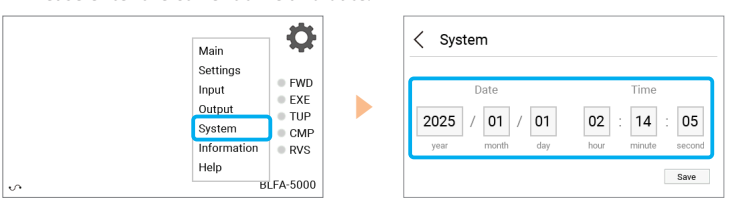
- When disposing of an old battery, such as for replacement, make sure that no current flows through it (insulate it) before disposing of it in accordance with the instructions of your local authority.

Setting Date

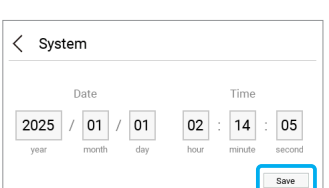
Replacing the coin cell battery resets the date to its default setting.

1 Touch ⚙ ▶ System.

- Please enter the current time and date.



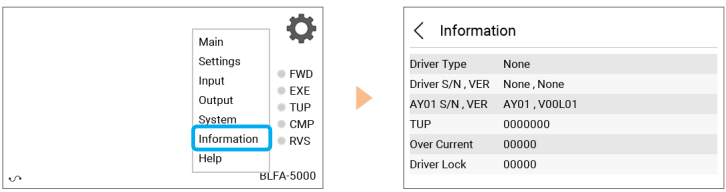
2 Touch Save.



Check the Serial No. and Version

You can check the firmware of the device and screwdriver serial number. It also displays the number of torque ups and critical errors.

1 Touch ⚙ ▶ Information.



1 Driver Type

The name of the connected screwdriver is displayed.

2 Driver S/N, VER

The serial number if the connected screwdriver and the firmware version are displayed.

3 AY01 S/N, VER

The serial number and firmware version of the device are displayed.

4 TUP

The accumulated number of torque ups is displayed.

5 Over Current

The total number of times the screwdriver stopped due to a current exceeding a certain value is displayed. The correct date will be stamped when you replace the coin battery and set the date.

6 Driver Lock

The total number of times the screwdriver stopped for a certain period of time without being able to rotate. The correct date will be stamped when you replace the coin battery and set the date.

Troubleshooting

If a problem occurs, refer to this chapter for troubleshooting before contacting your dealer or HIOS. If the problem persists, please contact your dealer or HIOS.

When a Message Is Displayed

If an error occurs with the screwdriver, a message will appear on the screen when there is a problem with the operation. See below for message details.

UART Setting Mode

The touch panel cannot be used for operation because the device's settings have changed via serial communication. If you want to use the touch panel again, restart the device.

Driver TUP over

Accumulated number of torque ups has reached 1 million. Maintenance of the screwdriver is required for continuous use.

Over Current

Overcurrent occurs. Review the setting such as installation method and torque.

Driver Lock

The screwdriver is locked without being able to rotate for a certain period of time. Review the setting such as installation method and torque.

Over Time

The action mode has not been completed after the time set in Over Time has elapsed. Review the Over Time setting and screw fastening work environment.

DRV CUR Low

Lower current than that during teaching is detected. Review the setting such as installation method and torque.

Driver Low V

The voltage setting of the controller connected to the screwdriver is set to LOW. Switch the setting to HI.

ERROR:XXX
The device may need repair or may have internal damage. Please contact us.

ERROR:AY01
The device may need repair or may have internal damage. Please contact us.

Common Problems

If you have any problem while using this device, please check the items in this section before making an inquiry.

The screwdriver does not work.
→ Check the connection status of the display to make sure that the screwdriver is correctly connected to the device.

Nothing is shown on the display.
→ The time specified with Screen off time may have elapsed. Touch the screen.

Setting cannot be changed from the device.
→ If you change the device's settings via serial communication, the device enters the UART Setting Mode and operations from the device are disabled. To cancel this mode, restart the device.

Time is grayed out in pass/fail judgment and cannot be set.
→ Time cannot be set if the screwdriver connected to the device is PGFA. Set the judgment based on the operation time with PG-01FA that is bundled with PGFA.

Time and date are not saved.
→ The built-in coin cell battery is dead. Replace the battery.

After-sales Service

Please direct questions about customer services to HIOS Inc. or your HIOS dealer.

Repair, and Replacement

- We cannot return the items you sent with the after-sales service request. Remove the items (seals, etc.) that you installed after purchase before sending.
- It may be necessary to reconfigure or change the settings of the after-sales service request when the product is repaired or replaced.
- You will be responsible for transportation and other expenses when you request after-sales service.

Cases We Cannot Undertake Repair or Replacement

- There is a trace of inappropriate repair, disassembly, or alteration
- When the serial number is listed on the after-sales service request, the serial label is missing or there is a trace of removal, and there is a trace of tampering with the serial number or conduct that makes it illegible (including a case where the serial number has been removed)
- It is thought to have been damaged during transportation due to inadequate packing
- It is determined that the damage is too severe to maintain the function even after repair
- It is reasonably determined that there are circumstances equivalent to those set forth in the preceding items.

Specifications

The device is subject to change and improvement without prior notice. We appreciate your understanding in advance.

Model	BLOP-AY01
Compatible drivers	• BLFA Series • PGFA Series*1
Number of Channels	8 inputs, 8 outputs
I/O Signals	Photocoupler input/output NPN/PNP switching
Serial communication	RS-232C
Power supply	input: AC100–240V 50/60Hz
Size (Width×Depth×Height)	140×76×100mm (excluding the largest projection) *Please download the CAD data from the website for more details.
Weight (g)	753g
Operating environment	Temperature: 5 to 40°C Relative humidity: 80% or less (no condensation)

*1 The pass/fail function for determining work time is disabled on this machine.

Notices

Disclaimer

- Specifications and appearance of the product are subject to change without notice.
- Please note that the contents of this manual are subject to change without prior notice.

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Illustrations

Unless otherwise specified, illustrations used in this manual are provided in BLFA-5000. However, if models have differences, multiple illustrations are also displayed with the model names such as "BLFA-5000 / PGFA-5000".

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