BLG-4000, BLG-5000, BLG-BC1 (With Built in Screw Counter), BLG-BC2/ZERO1 (With Built in Screw Counter and Pulse System), BLG-OPC (For Use with Screw Counter)

Important: Please read and save the operating instructions. Warning: When using electric tools, the following basic safety precautions should always be adhered to in order to reduce the risk of fire, electric shock, or personal injury.

Precautions

1. Keep Work Area Clean: Cluttered areas and benches can result in injuries.
2. Consider Work Area Environment: Do not expose tools to rain. Do not use tools in damp or wet locations. Keep work area well lit. Never use the tool in an area with dangerous objects present. (gasoline, benzene, thinner, gas glue, metallic objects, etc.)
3. Secure Work: Use clamps or a vice to hold work piece.
4. Guard Against Electric Shock: Prevent body contact with grounded surfaces.
5. Keep Away From Children and Unauthorized Personnel: Do not allow children or unauthorized personnel to use the tool.
6. Store Idle Tools: When not in use, tools should be stored in a dry and high or locked-up place.
7. Remove Adjusting Keys And Wrenches: Make a habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
8. Use The Correct Tool: Use the tool for the correct work for its rated power and design.
9. Dress Properly: Do not wear loose clothing or jewelry as they can be caught in moving parts. Wear protective head wear to contain long hair.
10. Use Safety Glasses: Also use a face or dust mask if the operation involves dust.
11. Do Not Abuse The Cord: Never carry the tool by its cord or pull it to disconnect from the power outlet. Keep the cord away from heat, oil, and sharp edges.
12. Do Not Overreach: Maintain proper footing and balance at all times.
13. Maintain Tools With Care: Keep tools clean for better and safer performance. Follow instructions for lubricating and changing accessories. To use the tool for an extended period of time safely, perform periodical inspections on the tool and if damaged, contact ASG. Keep hands dry, clean, and free from oil and grease. Inspect extension cords periodically and replace if damaged.
14. Disconnect Tools: When the tool is not in use, such as attaching and removing the bit, inspection or cleaning, disconnect the tool from the power outlet.
15. Avoid Unintentional Starting: Ensure that the switch is off when plugging in. Do not carry the tool with finger on the switch.
16. Stay Alert: Always remain vigilant, use common sense, and do not operate the tool when you are tired.
17. Check Damaged Parts: Before using the tool, a damaged protective cover or other parts should be carefully checked to determine whether the tool will operate correctly and perform as designed.
18. The tool should be grounded while in use to protect the operator from electric shock.
19. It only takes a slight amount of pressure for a push-to-start tool to go into operation.

Cautions in Operation

1. If there are any problems, do not disassemble the tool. Stop operations and contact ASG immediately.
2. Never lubricate the tool with aerosol oil or similar lubricants.
3. Do not drop, hit, or abuse the tool.
4. Never use chemicals to wipe the body cover
5. Use only the correct voltage.
6. Do not pull the AC cord when unplugging from the power outlet. Grasp the plug.
7. For safety use, do not set the torque adjusting nut higher than 10 on the torque adjusting scale
8. Use the tool intermittently: (Example: 0.5 seconds ON, 4.5 seconds OFF)
9. Do not tighten more than 720 tapping screws in an hour.
10. This tool is not for tightening wood screws
11. Set the power switch to OFF before putting the tool in reverse.
12. If the tool is not being used, turn the tool off and unplug the AC cord plug.
13. In push-to-start mode the driver automatically goes on when pressure is applied to the bit end.
14. In push-to-start mode do not raise the driver from the screw head until rotation has stopped.
15. When a tool with an internal counter is used in combination with an external counter, the external counter supercedes the internal counter of the tool. Turn off the screwdriver's counting function before use.
16. When the output setting for Power HI/LOW is changed, the screwdriver speed changes. In such cases, pay attention to the counter timer set value and reverse counter timer set value.

HIOS BLG Series: BLG-BC2
Operational Manual

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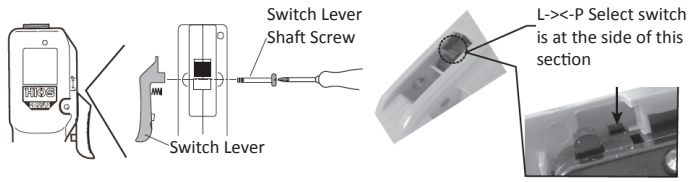
Operating Procedure

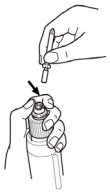
1. Connect the power cord plug to AC outlet.
2. Turn power switch on and check if the LED is illuminated. If it is not lit, contact ASG. After confirming it is lit, turn the power switch off.
3. Connect the driver cord to the power source.
4. Use the torque adjustment nut to select the desired output setting.
5. Attach the bit to the screwdriver
6. Turn the FOR/REV switch to OFF and connect the driver plug to an AC power outlet.
7. Turn on power supply and set the power output setting to 1(20V) or 2(30V).
8. Turn the switch to either FOR or REV to start the screwdriver.
9. Operate the clutch until the screw is tightened to the set torque value.
10. Always turn the power off before reversing the rotation direction setting.
11. When loosening a tightened screw, turn the FOR/REV switch to REV and loosen in the reverse direction.

Push-to-Start Mode

Unscrew the switch lever shaft screw to detach the switch lever. Using a tweezer, slide the selection switch to P (Push). Pushing the selection switch may cause damage. Do not use the screwdriver with the switch lever shaft screw removed.



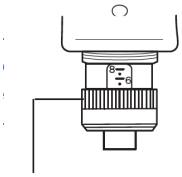
Attaching a Bit

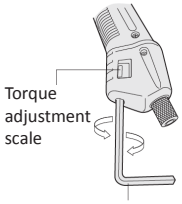


- Caution: When attaching the bit, always ensure that the driver FOR/OFF/REV switch is set to OFF or that the driver power plug has been removed from the AC power outlet.
- Use the correct bit size. To install the bit, push or pull the joint shaft collar at the end of the driver upwards and insert the bit. Check that the bit does not come loose after you have inserted it.

Torque Adjustment Procedure

- BLG-4000 has two torque adjustment springs – Red spring is for high torque measurement, white spring is for low torque measurement.
- Use the torque adjustment nut to select the desired output setting. Note that this setting should be taken as an approximate value. Adjust the setting by loosening the adjustment nut stopper and adjusting the torque adjustment nut. When the setting has been made, re-tighten the torque adjustment nut stopper securely. Repeat this process to determined the appropriate tightness. Use a torque tester to verify.
- BLG-5000: Use an allen wrench to adjust the scale.


Torque adjustment nut can be turned and moved manually with this ring



Screw Counter

- The BLOP-STC3 is a power supply with a screw counter. The BLOP-SC1 is a screw counter. Please see the operation manual for these products for more information.
- BLOP-STC3 Compatible Screwdrivers: BLG-4000-OPC, BLG-5000-OPCS, BLG-ZERO1, BLG-BC1, BLG-BC2
- BLOP-SC1: Must be used with an external power supply. Compatible Screwdrivers: BLG-4000-OPC, BLG-5000-OPCS, BLG-ZERO1, BLG-BC1, BLG-BC2
- Note: When a tool with an internal counter is used in combination with an external counter, the external counter supercedes the internal counter of the tool. Turn off the screwdriver's counting function before use.

Repairs

Contact ASG with any questions or concerns at +1-888-486-6163 or asginfo@asg-jergens.com

Accessories

- Bits
- Torque adjusting spring – BLG-4000 has two torque adjustment springs – Red spring is for high torque measurement, white spring is for low torque measurement.
- Allen wrench

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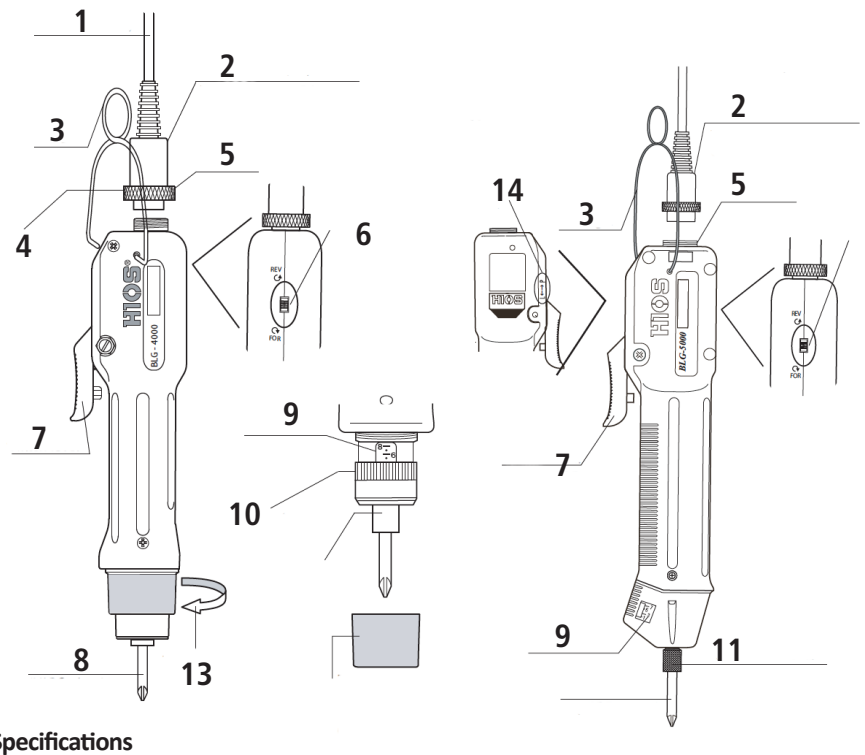
HIOS BLG Series: BLG-BC2
Operational Manual

Parts



1	Screwdriver Cord
2	Screwdriver cord plug
3	Hanger
4	Joint Ring
5	Screwdriver Connector
6	Forward/Reverse Switch
7	Switch Lever
8	Bit
9	Torque adjustment Scale
10	Torque adjustment nut
11	Joint shaft collar
12	Torque adjustment nut protect cover
13	Rotate the protect cover counter clockwise to remove.
14	Start Selection Switch - Marking between Lever and Push.

Specifications

Model Number		BLG-4000, BLG-4000ZERO1, BLG-4000BC1, BLG-4000BC2, BLG-4000-OPC	BLG-5000, BLG-5000ZERO1, BLG-5000BC1, BLG-5000BC2, BLG-5000-OPC	BLG-5000-15, BLG-5000ZERO1-15, BLG-5000BC1-15, BLG-5000BC2-15, BLG-5000-OPC-15	BLG-5000-18, BLG-5000ZERO1-18, BLG-5000BC1-18, BLG-5000BC2-18, BLG-5000-OPC-18	BLG-5000-HT, BLG-5000ZERO1-HT, BLG-5000BC1-HT, BLG-5000BC2-HT, BLG-5000-OPC-HT
Output Torque Range	N.m	0.1-0.55	0.2-1.2	0.3-1.0	0.5-1.5	0.5-2.0
	lbf.in	0.9-4.8	1.7-10.0	2.6-10	4.3-13	4.3-17
	kgf.cm	1-5.5	2.0-12	3.0-10	5.0-15	5.0-20
Torque Switching		Stepless Adjustment				
Unloaded Rotation Speed (rpm) ±10%	HI	1000	1000	1500	1800	730
	LO	690	690	1000	1200	
Screw Size	Machine Screw	1.4-2.6	2.0-3.0	2.3-3.0	2.3-3.0	2.0-4.0
	Tapping Screw	1.4-2.3	2.0-3.0	2.0-2.6	2.0-2.6	2.0-3.0
Weight (g)		370	425	425	425	425
Bit Type	HIOS Shank	H4		H4	H5 and 5Hex	
	Hex Shank	1/4" Hex	H5 and 5Hex or 1/4" Hex	H5 and 5Hex or 1/4" Hex	1/4" Hex	1/4" Hex
Power Supply	T-45BL	X	X	X*	–	X*
	T-70BL	X	X	X*	X*	X*

* Use only 2(HI) power. May not perform properly on 1(LO) power.

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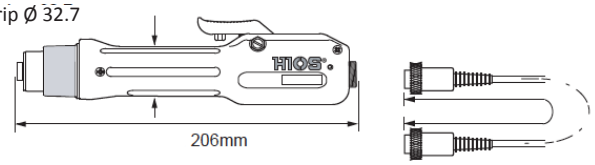
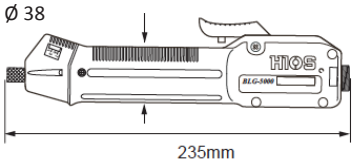
External Dimensions

BLG-4000
Grip Ø 32.7



BLG-5000
Grip Ø 38

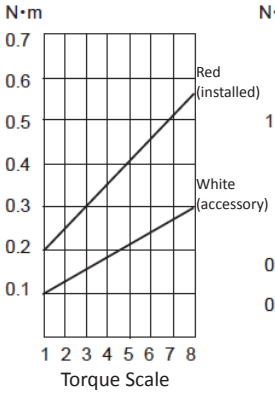


• Driver cord length
BLG-4000,
BLG-5000:1.5m(5P)
BLG-4000BC1,BC2,ZERO1,OPC
BLG-5000BC1,BC2,ZERO1,OPC
:2m(6P)

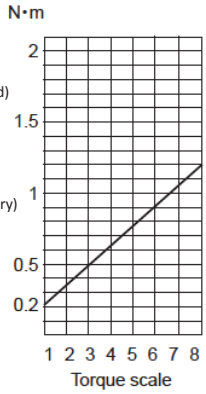
Unit:mm

Approximate Guidance of Torque Output

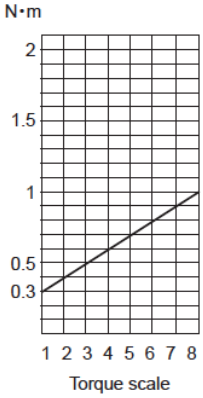
BLG-4000
BLG-4000ZERO1
BLG-4000BC1
BLG-4000BC2
BLG-4000-OPC



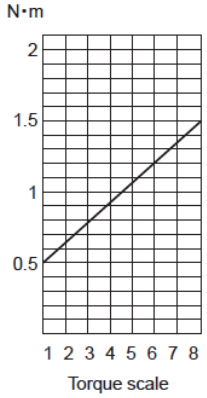
BLG-5000
BLG-5000ZERO1
BLG-5000BC1
BLG-5000BC2
BLG-5000-OPC



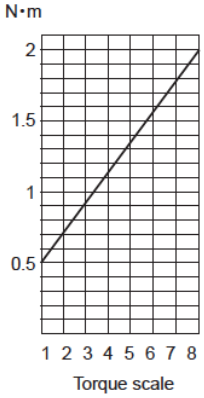
BLG-5000-15
BLG-5000ZERO1-15
BLG-5000BC1-15
BLG-5000BC2-15
BLG-5000-OPC-15



BLG-5000-18
BLG-5000ZERO1-18
BLG-5000BC1-18
BLG-5000BC2-18
BLG-5000-OPC-18



BLG-5000-HT
BLG-5000ZERO1-HT
BLG-5000BC1-HT
BLG-5000BC2-HT
BLG-5000-OPC-HT



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BLG-BC2 Features

- Brushless screwdriver with built-in screw counter and pulse system
- Contents: BLG-BC2 Input/Output Cable, Application software, communication specifications

Pulse System

The pulse system is a mechanism using an electric signal (pulse) that occurs during motor revolutions. By installing several fasteners into the assembly the screwdriver learns the numbers of motor revolutions required to correctly tighten the fasteners to the desired torque. The driver then establishes the minimum to maximum revolutions for process acceptance and displays the result of screw tightening with the LED green and red lights on the unit.

Counter Display Section

1	Function Display Section
2	BC2 Input/Output Cable (optional)
3	Display for screw count and set value
4	F2 Button
5	F1 Button
6	F3 Button
7	Fail Light
8	Pass Light

Screw Count Display Section/Set Value Display Section

- In the normal mode, the screw fastening count set value is displayed first, and after starting the count, the remaining screw fastening count is displayed. The count decreases with each screw fastening operation and the remaining screw fastening count is displayed.

Function Display Section

- The symbol corresponding to the set item is displayed in the setting mode.

F1 Button

- Press and hold the F1 button until the “P” appears then “ON” is displayed. Continue to press the F1 button to scroll through the setup functions. Press and hold the F1 button until the buzzer sounds twice to save the changes.

F2, F3 Button

- Using these buttons, the set value can be changed in the function setting. Some set values are limited depending on the function to be set. Press and hold the F2 button until [r0] is displayed and the pass/fail lights blink.

Pass Light*

- When the screw fastening result is “OK”, the green LED light turns ON.

Fail Light*

- When the screw fastening result is “NG”, the red LED light turns ON.

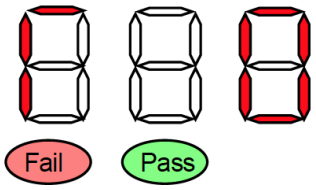
Direct Teaching

F1, F2, and F3 Buttons: These are used for each setup.
Display: Number of motor revolutions is displayed and either Pass/Fail light illuminates. The number of motor revolutions is displayed up to 3 digits, up to 999.

NOTE: Before Direct Teaching, fasten 1 or 2 screws to adjust the start position. This is a must.

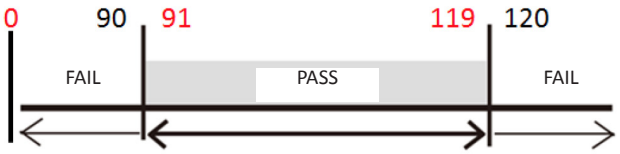
1. F2 Button: Press and hold until “r 0” is displayed and Fail/Pass lights blink.

Control Unit



3rd, 2nd, 1st digit

2. Start Direct Teaching: Fasten 3 or more of the same screws into the same joint. Direct teaching needs to be done using screws, parts, and a method of pick up which will be used in your production.
3. F3 Button: Press to select the acceptable range of Pass/Fail criteria. It is displayed in the order of ±0%, ±5%, ±10%, ±15%, ±20%.
4. F1 Button: Press to confirm the reference values of Pass/Fail including the acceptable range. Example: Assuming the reference values including the acceptable range are from 90 to 120, the pass range is from 91 to 119.



Note: In order to complete Direct Teaching, make sure to work through all the steps (1-4) .

5. F2 Button: Press and hold until the buzzer sounds twice to complete Direct Teaching.

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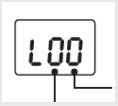
Setting Function List

Display	Setting Fuction (Default Value)	Symbol	Setting Description
(1)	Counter ON/OFF Setting <On>	P	ON: When selected, the counter function is available. OFF: When selected, it is used as a normal screwdriver. The display is also OFF.
(2)	Count <n05>	n	The screw fastening count value is set. Setting Range: 1 to 99
(3)	Minimum Revolutions* <ub0>	U	The minimum numbers of motor revolutions Display range: 000-999; Setting range : 000-999 * Hundreds place is not displayed. Fx. Minimum number is 110 but only 10 is displayed on the screen
	Maximum Revolutions* <^20>	n	The maximum numbers of motor revolutions Display range: 000-999; Setting range : 000-999 * Hundreds place is not displayed. Fx. Maximum number is 120 but only 20 is displayed on the screen. Refer to “Value Setting for Each setup functions”
			If the detected pulse is smaller than the minimum or larger than the maximum, the red LED light (Fail) turns on. If the detected pulse is larger than the minimum and smaller than the maximum, the green LED light (Pass) turns on.
(4)	Work Reset Timer <t1.0>	t	The buzzer sound time period after the work is completed is set. Setting Range: 0.0 to 3.9 seconds. Note: Set it based on the reverse count timer set value.
(5)	Reverse Count Timer <r0.4>	r	The time period until the reverse count is performed is set. Set the work reset timer operation time based on the time period up to when the reverse count is performed. Setting Range: 0.1 to 1.0 seconds. Note: It is available when the “Reverse Count Enable” has been set in the system setting.
(6)	System Setting <d03>	d	Each Buzzer or Reverse Count Enable/Disable is set up. The setting is performed with a combination of the tens digit and single unit digit. Tens Digit 0 : Buzzer Enable/Reverse Count Enable 1 : Buzzer Enable/Reverse Count Disable 2 : Buzzer Disable/Reverse Count Enable 3 : Buzzer Disable/Reverse Count Disable Units Digit 2 : Torque Up Buzzer Disable 3 : Torque Up Buzzer Enable
(7)	Over Time/Short Time <U 3>	U	This sets whether or not the Over Time/Short Time error is detected. “0 : When selected, neither Over Time or Short Time Error is detected.” 1 : When selected, only the Short Time Error is detected. 2 : When selected, only the Over Time Error is detected. 3 : When selected, both Over Time and Short Time Error are detected.
(8)	Accumulated Counter <L00>	L	The Total count of the screw fastening operations is displayed. For the total count, all the fastening operations are counted regardless of whether the counter is ON/OFF. Display:  Units Digit: Numbered in multiples of 100,000 shots Tens Digit: Numbered in millions of shots
(9)	No Error Time for Double Fastening		No error time can be set with three bards + values in order to avoid unnecessary errors during double fastening. This setting is enabled only when fastening is done properly. Display range: 0.0-9.9, Setting range: 0.0-9.9

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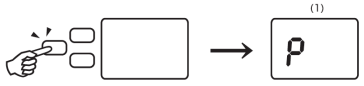
Screw Counter

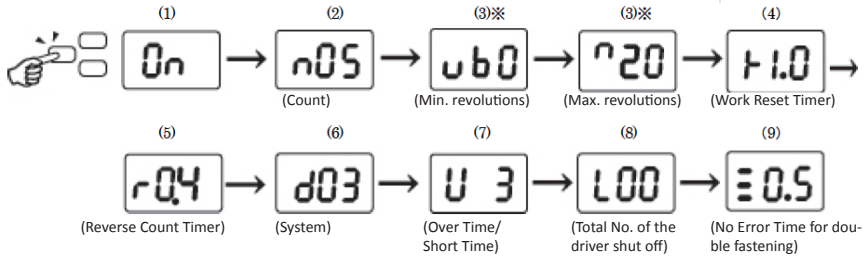
Changing the Setting Mode

Press the F1 Button for more than 2 seconds in the normal mode. "P" will be displayed in the function display section and the mode will be changed to the setting mode.



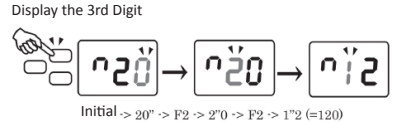
Setting Mode

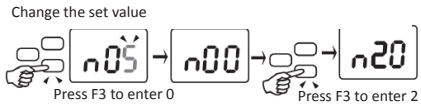
Pressing the F1 button allows you to scroll through each setup function. Refer to "Setting Function List" for the setting function details. Note the number of motor revolutions is displayed up to triple digits.



Value Setting for Each Setup Function

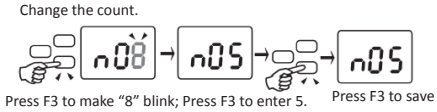
- Verify the hundreds (3rd) digit. Press the F2 Button to change the figure position for setting.
- Change the value. Pressing the F3 button increases the value one by one. Press and hold the F1 button until the buzzer sounds twice to save the change.
- Press and hold the F1 button until the buzzer sounds twice to save the change.





Change Cycle Count

- Press F1 Button for more than 2 seconds to increment to display number. Follow the procedure described in "Value Setting for Each Setup Function". The count can be set between 1 and 99.



Turn the count ON/OFF

- Press F1 Button for more than 2 sec. to turn the counter ON/ OFF

Note: The setting procedure is the same for all the settings except for the "Counter ON/OFF Setting"

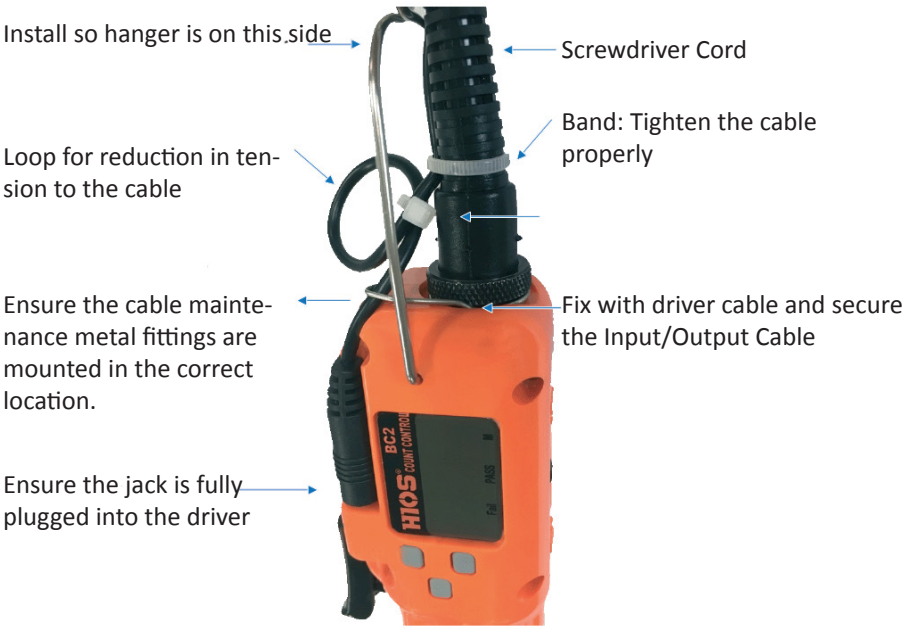
Other Information

The count is to be returned to the default value during the screw fastening operation.	Pressing the F3 button for 2 seconds or more, resets the screw fastening count value.
If you fasten a screw after the driver turns counterclockwise:	There may be some difference in results of motor revolutions after the driver turns counterclockwise as the start position may have changed. In this case, the start position needs to be reset by fastening a screw before starting actual fastening again in order to avoid errors.
"----" is shown on the display.	Once the cumulative usage count exceeds 1 million, "----" blinks on the display and the screwdriver is locked. In such case, overhaul or maintenance is required. Please contact ASG. Temporarily unlock the screwdriver. Press and hold F2 and F3 buttons at the same time.
To see the version of screwdriver	Press and hold F1 button. Press F3 button (deactivate screw-counter). Press and hold F1. The current version will be displayed following the "HIOS" text. Activate screw-counter if necessary.

BC2 Input/Output Cable

Please note the following points for use of the BC2 I/O Cable for BLG-BC2.

1. The cable has a loop near its jack plug to reduce tension to the cable.
2. Fix and tighten the BC2 I/O Cable in two spots with the attached band along the driver cord.
3. Read all the instruction manuals enclosed with the products and use them properly.



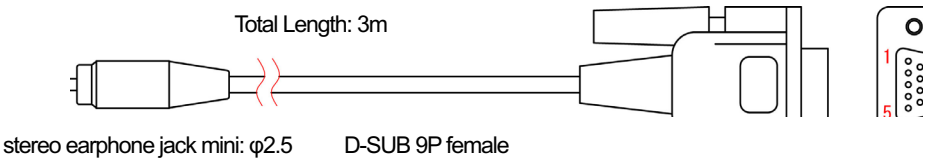
<BLG-BC2 Communication Specifications >

Communication Specifications Sheet: NO. ET-A011-BC2-IO1　15B

■**Communication settings**: Setup the followings to establish communication with the driver BLG-BC2

Connector Pin Assignment (BLG-BC2 I/O Cable)		Communication setup	
Pin number	Function		
2	TXD (Connect it to RXD terminal of PC)	1 Baud rate	38,400 bps
		2 Data length	8 bits
3	RXD (Connect it to TXD terminal of PC.)	3 Stop bit	1 bit
		4 Parity	None
5	COM	5 Format	ASCII

Use a dedicated Straight Cable　"BLG-BC2 I/O Cable"　to connect the driver to your PC or PLC.

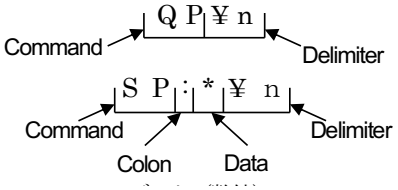


■Input message (Driver/PC)

There are two types of the input messages as shown below (Inquiry command and Setup command).

①Inquiry command
Configuration Example　QP¥n

③Setup Command
Configuration Example　SP:* (*=Numerical value)



■Startup messages

Output message
After the driver gets turned on then the ticker「HIOS」runs (for about 2 sec),
the following messages is displayed.　(For the details, refer to the list below.)

(1)	At startup of Screwdriver or PC (PLC, I/O box, etc.)	・Teaching coefficient ・ON /OFF of the BC2 setup functions. ・Cycle count ・Min. Motor Revolutions ・Max. Motor Revolutions ・Work Reset Timer ・Reverse Count Timer ・System ・Over Time - Short Time
(2)	When receiving message of request to send set value	・Teaching coefficient ・ON/OFF of the BC2 setup functions ・Cycle count ・Min. Motor Revolutions ・Max. Motor Revolutions

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HIOS

		・ Work Reset Timer ・ Reverse Count Timer ・ System ・ Panel Buttons operation ・ No error time for double fastening
(3)	When setup Teaching coefficient or receiving a message of setting Teaching coefficient	・ Teaching coefficient ・ Min. Motor Revolutions ・ Max. Motor Revolutions
(4)	When setting other setting values or receiving an Inquiry Message	Response messages for each setup

※Note: When you install our PC Application Software (sample), the following messages may be displayed on the screwdriver.

■List of Input messages

No.	Function	Inquiry command	Setup command or command meanings
1	All functions availability	QP	SP:0 (available) SP:1 (unavailable)
2	Cycle count	Qn	Sn:x, x = setup value (1~99) Note *1
3	Min. Motor Revolutions	Qc	Sc:x, x = setup value (0.00~0.99) Note *1
4	Max. Motor Revolutions	QC	SC:x, x = setup value (0.00~0.99) Note *1
5	Work Reset Timer	Qt	St:x, x = setup value (0.0~3.9) Note *1
6	Reverse Count Timer	Qr	Sr:x, x = setup value
7	System	Qd	Sd:x, x = setup value
8	Over Time - Short Time	QU	SU:x, x = setup value
9	Panel Buttons availability	Qo	So:0 available So:1 unavailable
10	No error time for double fastening	QG	SG: No error time : (0～99) resolution: 100ms
11	Version	QV	None
12	Total Number of the driver shut off (Torque Up)	QL	None
13	Release limitations total number of the driver shut off	None	SL
15	Detecting presence of work parts	W	W:0 without work parts W:1 with work parts
17	Force-Counter Reset	R:C	Forcibly reset the count and the operation
18	Error Reset	R:E	Reset the driver after detecting absence of a work part.
20	Lever Control availability	Lv	Lv:0 available Lv:1 unavailable
21	Emergency Stop	Em	Em:0 OFF Em:1 ON
23	Request to send setup value	QS	none
25	Teaching coefficient	AR: d	d: coefficient (%) Any one of 0, 5, 10, 15 or 20%

Note*1: For the setup values, please refer to the BLG operation manual.

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■Output messages

Receiving Inquiry Command: The message No. 1 to 16 will be responded only when Inquiry Command is received. The other messages will be responded during operations such as screw tightening.

No.	Function	Response Message	Remarks
1	All functions availability	AP:0 /AP:1	0: available 1: unavailable
2	Cycle count	An: x	x : setup value
3	Min. Motor Revolutions	Ac: x	
4	Max. Motor Revolutions	AC: x	
5	Work Reset Timer	At: x	
6	Reverse Count Timer	Ar: x	
7	System	Ad: x	
8	Over Time - Short Time	AU: x	
9	Panel Buttons availability	Ao:0 / Ao:1	
10	No error time for double fastening	AG: x	
11	Version	Ver x.xx yyyy/MM/dd	x.xx : version number yyyy/MM/dd date
12	Total number of the driver shut off (Torque Up)	AL: x	x: Total number of the driver shut off regardless of whether the BC2 functions are ON/OFF.
13	Message for receipt of abnormal messages	CE: Received message	Message when received message is abnormal.
14	Lever Control availability	Lv:0 / Lv:1	Lv:0 available Lv:1 unavailable
15	Emergency Stop	Em:0 / Em:1	Em:0 OFF Em:1 ON
16	Detecting presence of work parts	W:0 / W:1	W:0 without work parts W:1 with work parts
17	Lever Switch	L:0 / L:1	L:0 On / L:1 Off
18	Driver shut off (Torque Up)	T	
19	Message for no errors in screw tightening	D: No. of screws, Operation time	Message when screw tightening is done properly.
20	Pass Judgment	PASS	
21	Message for errors in screw tightening	E: Operation time	If the operation time exceeds 10s, it is displayed as "****".
22	Fail Judgment	FAIL	
23	Message for loosening screws	R: No. of screws, Operation time	Message when screw loosening is done properly.
24	Message for Count Reset	R	
25	Message for limitation in use	Over	Message when total number of the driver shut off has reached 1 million times
26	Message for error in presence of a work part	W: Err	when a work part is removed before completion of screw tightening
27	Unlocking screwdriver	SL	Unlocking the screwdriver blinking the mark " – " .

■ **How to unlock the screwdriver blinking the mark"-"**

If the total number of the driver shut off (Torque Up) has reached to one million times, the mark "—" starts blinking on the display of the unit. This means maintenance and calibration are needed.

To stop the mark "—" blinking, choose an either way described below:

1. By using the buttons on the unit ⇒ Press and hold the F2 and F3 button at the same time.

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2. By using the serial communication. ⇒ Send the message "SL¥n" from your PC or PLC.

■Messages received from PC or sequencer (Inquiry or Setup command)

No.	Function	Inquiry command	Setup command
1	All functions availability	QP	SP:0 available SP:1 unavailable
2	Cycle count	Qn	Sn:x x = setup value *1
3	Min. Motor Revolutions	Qc	Sc:x x = setup or learned value *1
4	Max. Motor Revolutions	QC	SC:x x = setup or learned value *1
5	Work Reset Timer	Qt	St:x x = setup value *1
6	Reverse count Timer	Qr	Sr:x x = setup value *1
7	System	Qd	Sd:x x = setup value *1
8	Over Time - Short Time	QU	SU:x x = setup value *1
9	Panel Buttons availability	Qo	So:0 ON / So:1 OFF
10	No error time for double fastening	QG	SG: No error time : (0～99) resolution: 100ms
11	Version	QV	none
12	Total number of the driver shut off (Torque Up)	QL	none
13	Unlocking screwdriver	None	SL
14	Request to send set value	QS	none

■ Messages to receive from I/O interface unit (event messages)

No	Function	Message	Meanings
1	Detecting presence of work parts	W:0 / W:1	W:0 without work W:1 with work
2	Panel Buttons availability	So: 0 / So: 1	So:0 available So:1 unavailable
3	Cycle count	R: C	Forcibly clear the count and the operation time for reset
4	Error Reset	R: E	Reset the driver after detecting absence of a work part.
5	Lever control availability	Lv:0 / Lv:1	Lv:0 available Lv:1 unavailable
6	Emergency Stop	Em:0 / Em:1	Em:0 cancellation of stop Em:1 emergency stop

■Messages sent to PC or PLC (response messages to inquiries and setting)

No	Function	Response message	Remarks
1	All functions availability	AP:0 / AP:1	0: available 1: unavailable
2	Cycle count	An: x	x: setup value *1
3	Min. Motor Revolutions	Ac: x	X: setup or learned value *1
4	Max. Motor Revolutions	AC: x	X: setup or learned value *1
5	Work Reset Timer	At: x	X: setup value *1

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6	Reverse Count Timer	Ar: x	X: setup value *1
7	System	Ad: x	X: setup value *1
8	Over Time - Short Time	AU: x	X: setup value *1
9	Panel Buttons ON/OFF	Ao:0 / Ao:1	0: ON 1: OFF
10	No error time for double fastening	AG: x	x: 0 ～ 99 [unit: 100ms]
11	Version	Verx.xx / yyyy/MM/dd	x.xx : version No. yyyy/MM/dd date
12	Total number of the driver shut off (Torque Up)	AL: x	x: Total number of the driver shut off
13	Message for receipt of abnormal messages	CE: Received Message	Response message when the received message is abnormal
14	Lever control availability	Lv:0 / Lv:1	Lv:0 available Lv:1 unavailable
15	Emergency stop	Em:0 / Em:1	Em:0 cancellation of stop Em:1 emergency stop
16	Teaching coefficient	AR: d	d: coefficient (%), either of 0, 5, 10, 15 or 20

■ Messages sent to PC or PLC (event message)

No	Function	Event message	Remarks
1	Detecting presence of work parts	W:0 / W:1	W:0 Without work W:1 With work
2	Lever SW	L:0 / L:1	L:0 Lever On L:1 Lever Off
3	Driver shut off (Torque up)	T	
4	Message for no errors in screw tightening	D: No. of screws, Operation time	Message when screw tightening is done properly
5	PASS Judgment	PASS	
6	Message for errors in screw tightening	E: Operation time	If the operation time exceeds 10s, it is displayed as "****".
7	FAIL Judgment	FAIL	
8	Message for loosening screws	R: No. of screws, Operation time	Message when screw loosening is done properly.
9	Message for Count Reset	R	
10	Message for limitation in use	Over	Message when the total number of the driver shut off has reached to 1 million.
11	Message for error in presence of a work part	W: Err	when a work part is removed before completion of screw tightening
12	Count of motor revolutions	Revolutions: nnnnn	

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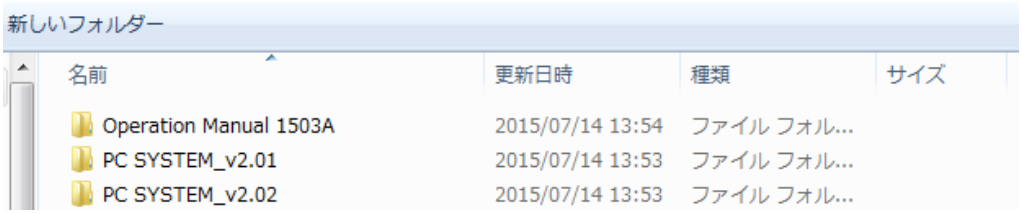
< Operation Manual of the BLG-BC2 Application software >

Communication Specifications: NO. ET-A011-BC2-AS1 15B

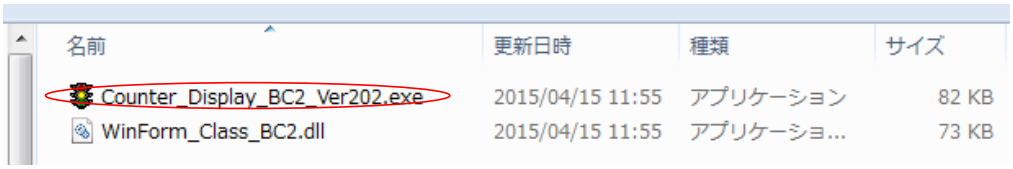
(For basic operations, refer to how to use Windows.)

1. Choose the folder “PC SYSTEM _v2.01 or 2.02 in the CD, which is attached to the optional BLG-BC2 I/O Cable, based on the version of your BLG-BC2 and copy and paste it to your computer.

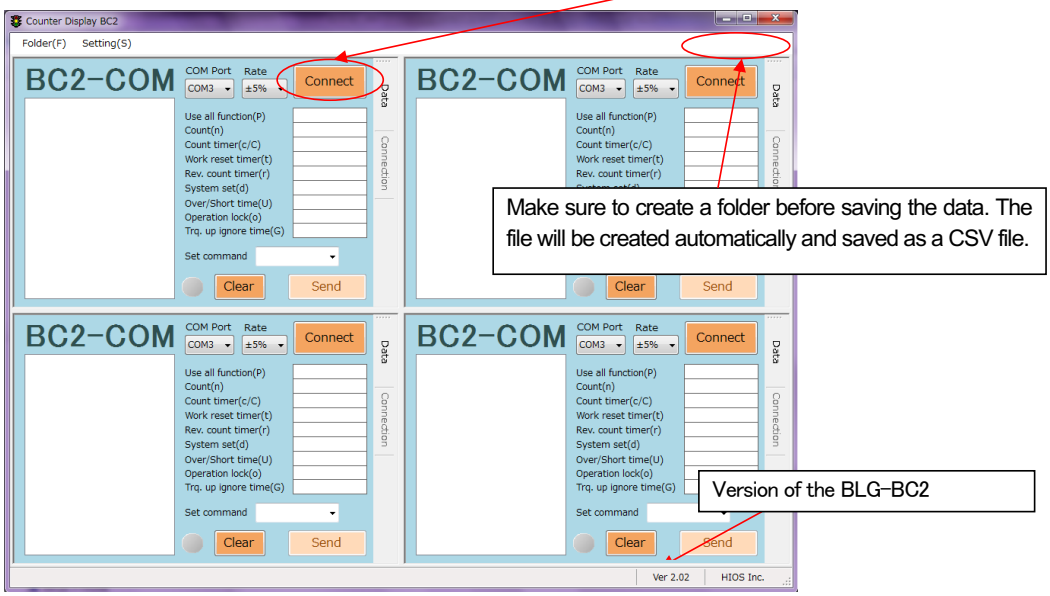


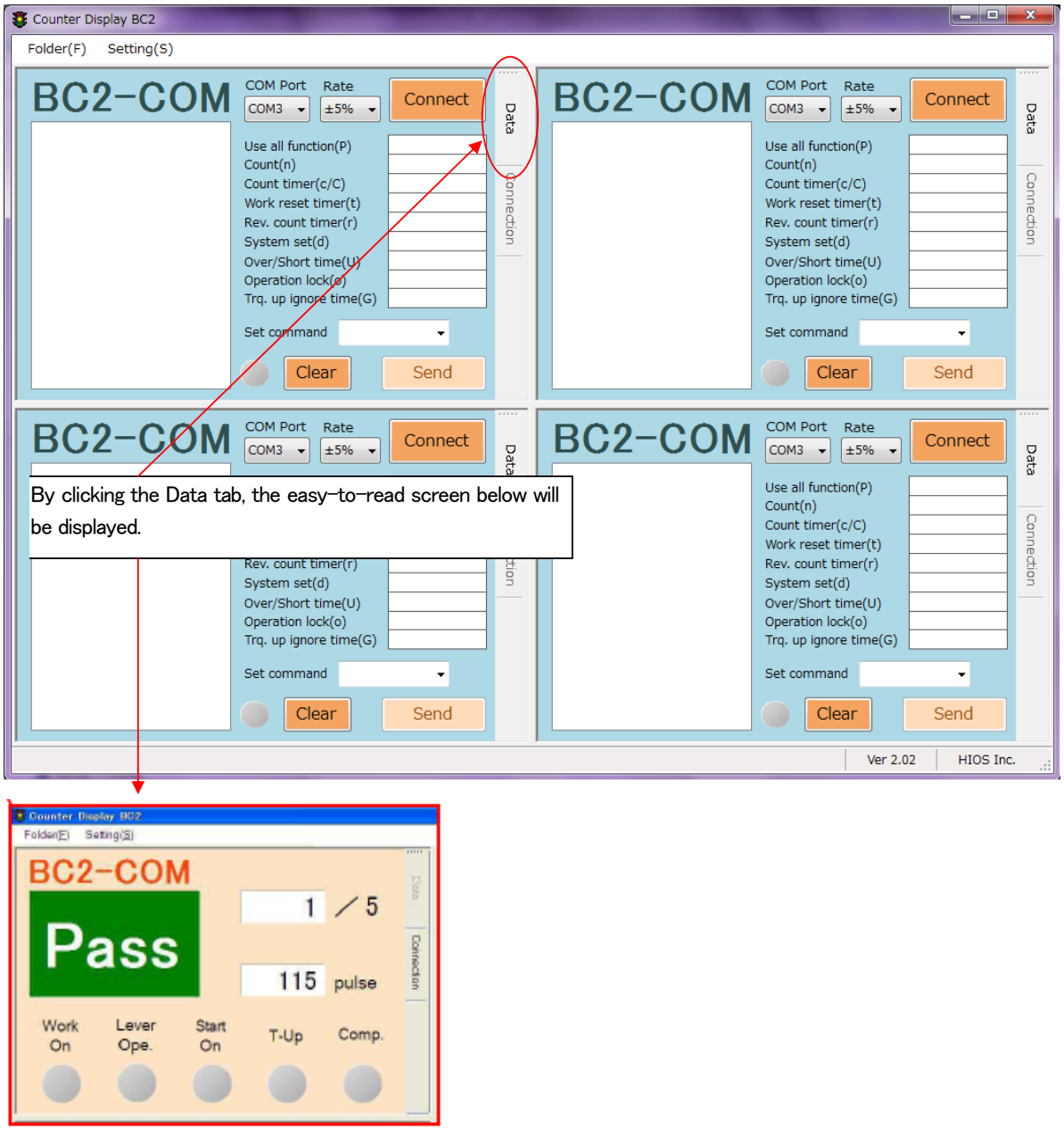
※The version of your BLG-BC2 can be checked with the display on the unit when you turn off its Counter function. Press and hold the F1 button until the “P” then the “On” is displayed. Then, press F3 button to turn off its Counter function. Finally, press and hold the F1 button to save the change. The version of the unit is displayed.

2. Click the file “Counter Display_BC2 Ver ***.exe” to activate the application software.



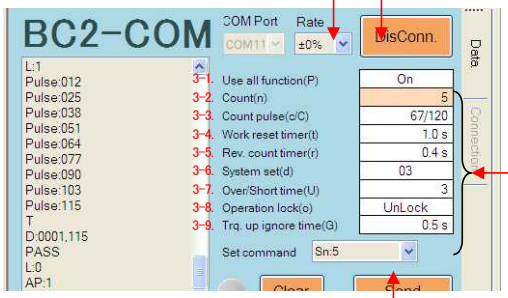
■ <Connection screen> Setup the COM Port (select) and click “Connect” button on the screen.




Counter Display BC2
Folder(F)
Setting(S)
BC2-COM
COM Port
Rate
COM3
±5%
Connect
Data
Connection
Use all function(P)
Count(n)
Count timer(c/C)
Work reset timer(t)
Rev. count timer(r)
System set(d)
Over/Short time(U)
Operation lock(o)
Trq. up ignore time(G)
Set command
Clear
Send
By clicking the Data tab, the easy-to-read screen below will be displayed.
Ver 2.02
HIOS Inc.

BC2-COM
Pass
1 / 5
115 pulse
Work On
Lever Ope.
Start On
T-Up
Comp.

■ Connecting with BLG-BC2



1. Acceptance range of Pass/Fail criteria.
2. Button to connect/disconnect with BLG-BC2
3.
3-1. BC2 functions: ON/OFF
3-2. Cycle Count
3-3. Min. and Max. numbers of motor revolutions
3-4. Work Reset Timer
3-5. Reserve Count Timer
3-6. Buzzer: ON/OFF
3-7. Over Time/Short Time
3-8. Lock or Unlock the buttons on the driver
3-9. No error time for double fastening
4. Enter a target value here to change the already set value.
5. Click here to send the new target value set in 4 above.
6. Clear the log data in the window (see 7).
7. The log data transmission to BLG-BC2 is displayed here

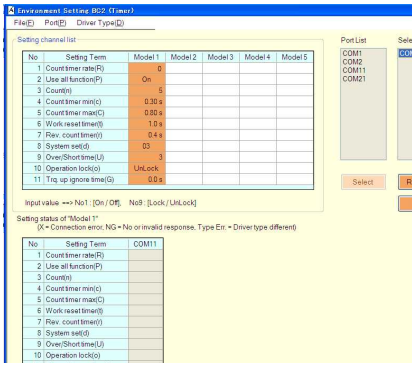
For the details, refer
to the BLG-BC2 operation manual
and the communication specifications.

Setup example> If you change a value in the setup window (see 4. above), its Corresponding value in the window (see 3. above) will be changed; the data in the BLG-BC2 will be changed accordingly and automatically.

<Example> Count: Sn:50 → The value in the window (3-2) will be changed to 50/120.
(Note: Make sure the min. no. of motor revolutions does not exceed the max. no.)

■ Data saving

Click Setting in the menu bar to show the page below to save the change.



■ Create a folder to save the fastening data.

Create a folder initially and you can save the fastening data automatically.