HIOS®

Mini-Counter
BLOP-SC3

Instruction Manual

(Current as of Jan. 2012)

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Instruction Manual No ET-A045 **12A**

(Contents)

Introduction

BLOP-SC3 has the same functions as BLOP-SC1 except interface with external equipments. The specification may change without notice.

■Outline

The BLOP-SC3 can be connected between HIOS BL-OPC series and the power supply, T-30BL or T-70BL.
Each setting can be checked and changed at the button of the display panel.

■SC3 Series Count Function

1. The number of screws to be tightened for a particular work piece can be set to between 1 and 99 for this unit. The remaining number of screws to be tightened is counted down in the display after each screw has been tightened.
2. The buzzer beeps after the final screw has been tightened to prevent the operator from forgetting to tighten screws.
3. The auto reset function automatically updates the unit's display when all screws are tightened and can be used to prevent the driver from being used until the SET signal is received when the next work piece is set.
   * The screwdriver cannot be used while in standby mode.
4. Prevents tightening check and increase tightening (tightening the screw once more) from counting.
5. The unit can be set so that it does not count screws which have not been properly seated and cross-threaded screws.
   * Varies with the type of work being performed.

■Installation Area

- Use the HIOS Power Supply designed for the driver.
- Install the unit in a temperature and humidity controlled room with adequate ventilation.
- Install the unit in an area where is not subjected to dust, dirt or metal fragments.
- Install the unit in an area where is not subjected to water or oil.
- Do not place heavy items on the unit.
- Select a safe installation area that is free from vibrations.
- Do not install the unit near other high-voltage equipment or electrically noisy environments.
- Do not bind both input and output cables with other cables such as power cable. It may cause incorrect movement of the counter.

■Precautions for Use

- Ground the HIOS power supply connected to the unit and use the power supply within the specified voltage.
  Exceeding the rated load can cause a malfunction.
- Use the unit in temperatures of 5°C to 40°C and 80% or less humidity (with no condensation).
- Always hold the plug when connecting or removing the driver cord.
- Do not pull the cords; drag them across oil or sharp edges, or place heavy objects on top of them. Doing so may result in severed wires or malfunctions.
- When the screwdriver locked during tightening, the power supply over-current detector is activated and shut-off the output. If this happens many times, it must be applied more torque or power than the specification of either screwdriver or power supply. Even if the trouble happens within the specification, switch off the connected HIOS power supply, disconnect the AC plug, and then inquire to your distributor.
- If the unit overheats, turn off the main power switch of the connected HIOS power supply, remove the power cord from the power outlet and cool down the unit. The unit may be used again once it has cooled down. If it overheats again immediately stop using the unit, turn off the main power switch, remove the power cord from the power outlet and inquire to your distributor.
- When tightening screws on plastic work pieces that may contain a lot of static electricity build up, remove electricity before starting work. If electricity is not removed, static electricity may flow from the end of bit, resulting in incorrect operation.
- Do not drop or give strong shock to the counter.
- Do not connect drivers other than those manufactured by HIOS. It may cause malfunction.
- Turn the main power switch of the HIOS power supply OFF if the unit is not used for a prolonged period of time, and remove the power plug.
- Never dismantle or modify the unit. Doing so may result in a malfunction and make it difficult to repair.

■Specifications

Model		BLOP-SC3
Primary	Input voltage	DC20 to 31V
Power Consumption		0.5 W (Max.) / DC 31 V
Secondary	Output voltage	Output Voltage Depends on the connected HIOS power supply (same as the input voltage)
Dimensions (mm)		120 (W) x 25 (D) x 25 (H), counter case size
Weight (g)		120g
Accessory		Instruction manual (1 copy)

■BLOP-SC3 and Power supply

BLOP-SC3	Number of screwdriver
BL-OPC screwdriver: BLG-4000-OPC, BL-2000-OPC, BL-3000-OPC, BL-5000-OPC, BL-5020-OPC and BL-7000-OPC, to be used with HIOS power supply for BL series.	1 unit only

■Main Features and Terminology

1. Tightening Check
- Refers to the act of tightening screws a second or third time to check that the screws have been tightened properly or to completely seat the screw. The terms second tightening or increase tightening may also be used for the same meaning.

2. Torque Up
- After each screw has been tightened, the torque reached to the set level of the electric screwdriver and then the clutch is disengaged.

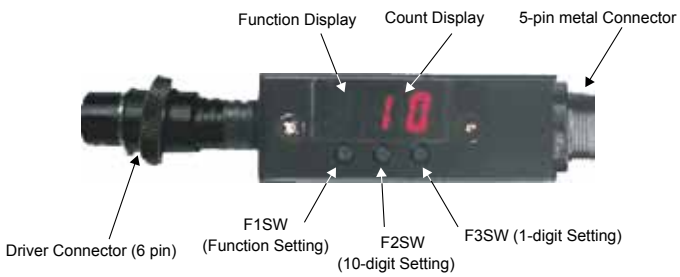
- The unit will recognize the first torque up operation after the normal rotation (counter clockwise)* count timer elapses as the final torque up for screw tightening. Please set the count timer so that it does not count down after torque up operations for tightening checks.
  *** The normal rotation count timer is hereinafter referred to as the count timer.**

3. BL-OPC Specifications (electric screwdriver)
- BL-OPC specifications refer to BL (brushless) electric screwdrivers with output functions that have normal rotation, reverse rotation and torque up signal output functions.

4. Screw Tightening Over and Screw Tightening Complete
- "Screw tightening over" in the instruction manual refers that one screw has been tightened completely.
- "Screw tightening complete" in the instruction manual means that all screw tightening operations for a certain work piece have been completed.

5. Counter Mode
- The number of screws to be tightened can be seen in the count down display as each screw is tightened.

<Operation, Display Panel>



[Operation and display]

●Driver Connector (6 pin)
- Connect with HIOS BL-OPC type screwdriver. Lock with ring attached.
- Do not connect other than BL-OPC type screwdriver, brushed screwdriver as well.

●5-pin metal Connector
- Connect with 5-pin driver cable with power supply. Do not connect with screwdriver.
- Do not connect other than the power supply for HIOS BL series; T-30BL or T-70BL only. Also use the power supply which is suitable for the screwdriver. Otherwise the power supply will be overloaded or the screwdriver cannot get enough power to fasten.

●Count Display
- Displays set number of count. Once count down begins, it shows remaining count.
- After finish fastening, count down to show the remaining screws to be fastened.

●**Function Display**
- Displays the symbol corresponding to the mode when setting the counter.

●**F1 Switch (Function Setting)**
- Enters function switch mode when the switch is held for 1 second or more after reset (function display "F").
- Buzzer beeps twice when the switch is held for 1 second or more while in function switch mode to signal that function switch is complete.

●**10-digit, 1-digit Setting Switch (F2, F3)**
- Increases digits by one each time the switch is pressed. The value of setting varies depends on the function.

(1) Count Set Mode (function display "n")
- The number of screws to be tightened can be set to any value between 1 and 99.
- Use the change set value switch (F2, F3) to jump between units of 10 and 1. Please note the unit will not recognize a set value of 00 (a warning buzzer will sound).

(2) CN-T (count timer) Set Mode (function display "C")
- The range of settings is between 0.00 and 0.99 seconds.
- This setting switch prevents tightening checks and increased tightening of screws from being counted a second time.
- The driver can only be used when the count timer has been set, regardless of other settings.

(3) WR-T VR (work reset timer) Set Mode (function display "r")
- The range of settings is between 0.0 and 3.9 seconds.
- Sets the space of time from when work is completed up until the VALVE signal is stopped to prevent use of the driver.
- Set the time on the work set timer to suit the work conditions.

(4) RCN-T (reverse rotation count timer) Set Mode (function display "R")
- The range of settings is between 0.1 and 1.0 seconds.
- Sets the time up until reverse rotations are counted.
- Set the time on the work reset timer using the time until reverse rotation operations are counted as a guide.

<Caution>
- The **reverse rotation count timer** can only be used with brushless drivers. This function can only be used when RCN-T is enabled in (6) System settings below.

(5) System Set Mode (function display "d")
i) BUZZ (Buzzer: ON···Beep, OFF···NO Beep)
ii) RCT-N (Reverse rotation count: ON···Valid, OFF···Invalid)
iii) T-UP BUZZ (Torque-up Buzzer: ON···Beep by Torque-up, OFF···NO Beep)

(6) Over time/Short time Set Mode (function display "U")
- Select either detect Over time/Short time.

Note) Reverse rotation count timer
- Reverse rotation count timer is to define the time until count up by reverse,
- The unit will count up reverse rotations made when the final screw tightening count is "00", regardless of the reverse rotation count timer setting, as even a brief reverse rotation will be recognized by the unit as loosening a screw.

- The reverse rotation count is a function designed to cancel a screw count resulting from a torque up operation. After the count has been reversed following a reverse rotation, it will not be possible to reverse the screw count again until the count down is resumed following normal rotation.

■Default Settings

1. Connection
(1) Connect the driver cord to the BL-OPC type screwdriver.
(2) Connect the appropriate HIOS power supply for the BL series power supply, T-30BL or T-70BL.

2. Work procedures
(1) Turn the main switch of the external power supply "ON".
- Press the F1 switch until buzzer beeps. Keep pressing more than 1 second until "F" is displayed at the function display.

(2) Set Work Set Timer.
- Pressing the F1 switch, to change to Work Set Timer set mode (function display "n"), and, set the number of fastening using the F2 (10-digit) and F3 (1-digit) switches. (range of settings: 1 to 99 counts, 00 is not applicable)
- Using the F1 switch, change to work set timer mode (function display "n") and set the timer using the F2 (10-digit) and F3 (1-digit) switches. (range of setting: 0.0 to 3.9 seconds)
- Pressing the F1 switch, after settings are complete, it moves to the next item to be set.
- Pressing the F1 switch more than 1 sec until Buzzer beep twice to escape from setting mode.

(3) Set Count Timer
- Pressing the F1 switch, change to count timer set mode (function display "C"), and while carrying out tightening checks, set count timer using the F2 (10-digit) and F3 (1-digit) switches. (range of setting: 0.00 to 0.99 seconds)
- Pressing the F1 switch, after settings are complete, it moves to the next item to be set.
- Pressing the F1 switch more than 1 sec until Buzzer beep twice to escape from setting mode.

<Caution>
- If you set Count Timer longer than fastening time, it never count down. Be careful for the screw whose length below screw head is short.

(4) Set Work Reset Timer
- Pressing the F1 switch, change to Work Reset Timer mode (function display "r"), and set the time using the F2 (10-digit) and F3 (1-digit) switches. (range of setting: 0.0 to 3.9 seconds)
- Set Buzzer Beep Time when 1 work is completed.
- Set the time to fit your working condition.
- Pressing the F1 switch, after settings are complete, it moves to the next item to be set.
- Pressing the F1 switch more than 1 sec until Buzzer beep twice to escape from setting mode.

(5) Reverse rotation Count Timer (RCN-T).
- Pressing the F1 switch, change to Reverse rotation Count Timer mode (function display "R"), and set the time using the F3 (1-digit) switch. F2 switch is invalid. (range of setting: 0.1 to 1.0 seconds)
- Pressing the F1 switch, after settings are complete, it moves to the next item to be set.
- Pressing the F1 switch more than 1 sec until Buzzer beep twice to escape from setting mode.

<Caution>
- If the start lever is released after 0.1 seconds has passed for screws with short threads that can be removed within 0.1 seconds of starting reverse rotation, a single count up will be made.
- Take note that a single count up will be made if the reverse rotation is operated for longer than the time set on the reverse rotation count timer even if a screw is not being loosened.

(6) System settings
- Pressing the F1 switch, change to system setting mode (function display "d") and set the system settings using the F2 (10-digit) and F3 (1-digit) switches.
- The settings available are as follows.
  a) BUZZ (Buzzer: ON···Beep, OFF···NO Beep)
  b) RCT-N (Reverse rotation count: ON···Valid, OFF···Invalid)
  c) T-UP BUZZ (Torque-up Buzzer: ON···Beep by Torque-up, OFF···NO Beep)
- Settings and functions are as follows.

SW_DSW	X10 (F2)	
MODE	BUZZ	RCN-T
0	ON	ON
1	ON	OFF
2	OFF	ON
3	OFF	OFF

SW_DSW	X1 (F3)
MODE	TUP BUZZ
–	–
–	–
2	OFF
3	ON

- Pressing the F1 switch, after settings are complete, it moves to the next item to be set.
- Pressing the F1 switch more than 1 sec until Buzzer beep twice to escape from setting mode.

(7) Over Time/Short Time setting
- Pressing the F1 switch, change to system setting mode (function display "U") and set the Over Time/Short Time settings using the F3 (1-digit) switch. F2 switch is invalid. (range of setting: 0 to 3)
- The setting is as follows.

0: Do NOT detect Over Time/Short Time Error.
1: Detect Short Time Error only.
2: Detect Over Time Error only.
3: Detect both Over Time/Short Time Error.

<Caution>
- If you cancel the setting, turn off the AC Switch of Power supply of the screwdriver, T-30BL or T-70BL, otherwise all the settings are ignored.

■Basic Usage

■Connection

(1) Connect the 6-pin driver cord to the unit's metallic connector.
(2) Connect the 5-pin cable to HIOS Power supply which is suitable for the screwdriver, T-30BL or T-70BL.

■Setting and Operating Procedures

(1) Pressing the F1 switch, change to System Setting mode (function display "d") and set F3 SW to 2(Torque up Buzzer disable) or 3(Torque up Buzzer enable). Set F3 SW, 0 to 3, as you want.
(2) Set fastening number at Count Set Mode (function display "n").
(3) Set Count Timer between 0.00 and 0.99 sec at Count Timer Set Mode (function display "C").
(4) Pressing the F1 switch more than 1 sec until Buzzer beep twice to finish setting.
terminal on the rear panel of the unit.

■Trouble shooting

Check the SC3 as flows. If you cannot solve the problem, consult with your distributor.

Phenomenon	Check points
Power does not ON.	(1) Confirm that the 6-pin driver cord and 5-pin DC power cord is OK. • AC cord of power supply, T-30BL or T-70BL is connected to AC plug. • If AC cord is not connected, connect it and Power ON the AC Switch of power supply.
Counter function is not working.	(2) Consult with HIOS Inc.