



INSTRUCTION MANUAL

Screw Fastening Counter

Model

DLR5340-WU

Manufactured by:

NITTO KOHKI CO., LTD.

2-9-4, Nakaikegami, Ohta-ku, Tokyo 146-8555, Japan

Tel: (03) 3755-1111

Fax: (03) 3753-8791



SAVE THESE INSTRUCTIONS

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Note: For instructions on how to handle the electric screwdriver, refer to the instruction manual included with the electric screwdriver.

***** Definitions *****


Count correction:	Function for correctly counting the number of fastened screws with the aid of the correct timer
Correct timer:	Timer for setting the predicted time of screw fastening
Count return:	When a fastened screw is loosened, the number of fastened screws is decremented by one.


Thank you very much for your purchase of this **Nitto Kohki products**.


Before using your tool, please read this manual carefully so that you may use it properly to get the most out of it.

Please keep the manual handy - so you can use it whenever necessary.

The following Safety notations are used throughout the manual to highlight safety precautions for the user and for the tool.

 WARNING:	Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in death or serious injury.
---------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------

 CAUTION:	Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in injury or material damage.
---------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------

Please note, however, that failure to observe safety precautions under the “ Caution” category could result in a serious occurrence depending on the situation: please observe all safety precautions in the manual.

Caution: Important precautions for tool setup, operation and maintenance.

Safety Symbol Identification



Warning: It might be dangerous to operate the tool if the instructions supplied are not followed.



Using this tool improperly could result in serious injury. Read the instruction manual before using.



Always wear hearing protection.



Always wear eye protection.



Always use only indoor.



Do not allow the main body or the power source to get wet as it will cause electric shock and leakage.

1. **Safety Precautions**

When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following

WARNING

1. Keep work area clean.

- Cluttered work areas and benches invite accidents and injuries.

2. Consider work area environment

- Do not expose the tools or components to water and rain. Do not use the tools in damp locations.
- Use a safety device such as Earth-Leakage Circuit Breaker if it inevitable to power supply in the wet condition.
- Keep work area well lit.
- Do not operate near flammable liquids or in gaseous or explosive atmospheres.

3. Check the power source.

- Operate under the power source the voltage fluctuating rate of which is within $\pm 10\%$ of the rated voltage, and the frequency of which is 50/60Hz of sinusoidal wave.

4. Be cautious about electric shock.

- When using electric tools, do not touch any which is earthed. (Ex. Pipe, heating apparatus, microwave oven, outside frame of refrigerator)

5. Keep children away.

- Also all visitors should be kept away from work area.
- Do not let visitors contact the tool, or connecting cords.

6. Store idle tools

- Keep the electric tool away from children when you do not use, and do not permit unauthorized personnel, who are unfamiliar to the electric tool or the manual, to operate the tool.

7. Do not force tool

- It will do the job better and safer at the rate for which it was intended.
- Do not use this tool for other purposes than fastening screws.

8. Use the right tool

- Do not use a small tool or attachment to do the job of a heavy-duty tool.
- Do not use tool for a purpose not intended.

9. Dress properly

- Do not wear loose clothing or accessories. They can be caught in moving parts.
- Non-skid footwear are recommended.
- Wear protective hair covering to contain long hair.

10. Always wear eye protection

- Everyday eyeglasses only have impact resistant lenses. They do NOT protect eyes. Also use face or dust mask, if operations create dust.

11. Do not abuse cable

- Never carry tool by connecting cable or yank it to disconnect from receptacle.
- Do not place a cable near a place with high heat, oil, and sharp edges.

12. Secure Work

- Use clamps or a vice to hold the work when practical.
- It is safer than using your hand and it frees both hands to operate tool.

13. Do not overreach

- Keep proper footing and balance at all times.

14. Cautious maintenance is necessary for electric tools

- For safe and efficient work, use the proper bit and check it regularly.
- Check the cable regularly. Contact sales agents to repair it when it is defective.
- When an extension cable is used, check regularly and change it when it is damaged.
- Keep handles dry, clean, and free from oil and grease.

15. Switch off and take off the plug for the following

- When not in use, when repairing, when changing accessories and bits, etc.

16. Do not use a tool violently

- Do not swing the tool around and hold the body firmly when using. If not, it may cause injury. Do not drop or abuse the body. If there is breakage, cracks, or transformation, it may cause injury.

17. Always avoid unexpected start

- Do not carry the tool with a finger on the switch when the power supply is on.

Make sure that the switch is off before plugging in.

18. Use appropriate power cable or an extension cable when it is used outside.

19. Start alert

- Watch what you are doing.
- Bear in mind the way of handling/operation and the circumstances of the surrounding area.
- Use common sense.
- Do not use when you are tired or under the influence of drugs, alcohol or medication.
- Do not bring hand or face close to moving parts such as bit etc. when in use. Otherwise, it may cause injury.

20. Check damaged parts

- Before further use of the tool, an accessory or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended functions.
- Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation.
- An accessory or other part that is damaged or inoperable should be properly repaired or replaced. When a switch becomes out of order, repairs should be performed only by the sales agent from whom you purchased the tool or an authorized dealer.
- Do not use electric tools which cannot be activated or stopped with a switch.

21. Use recommended accessories

- Consult this manual or the sales agent from whom you purchased the tool or an authorized dealer for recommended accessories. The use of improper accessories may cause risk of injury to persons.

22. Repairs by authorized personnel

- This tool should not be modified as it meets safety requirements.
- Any repairs to the tool or installation of replacement parts should be performed only by the sales agent from whom you purchased the tool or an authorized dealer.
- Failure to utilize the expertise of the sales agent from whom you purchased the tool or authorized dealer or, failure to use genuine replacement parts, may result in an increased risk of injury to the user and may invalidate your warranty.

23. Do not allow the following chemicals to come into contact with the tool housing, as damage will result. For example, trichloroethylene acetone, benzene, thinner, ketone, or other same chemicals.

2. **Operation Precautions**

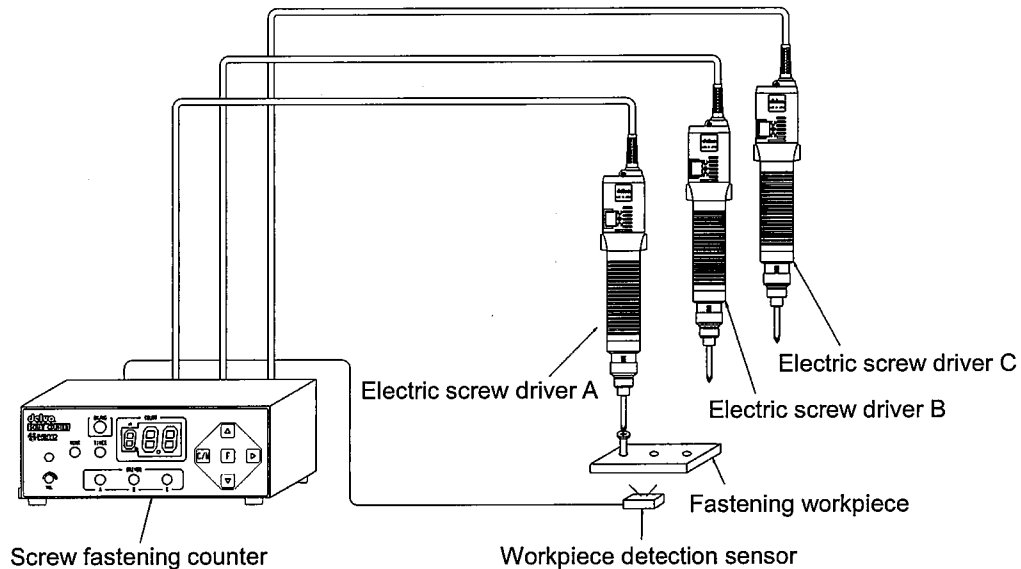


CAUTION

1. Use at the voltage, which is indicated on the rating plate. If used at a higher voltage than indicated, it may cause damage and accident.
2. When the tool does not work properly, or you hear abnormal sounds during usage, switch off immediately and request the repair work to be done by an authorized service facility. If you keep on using the tool, it may cause injury.
3. Install only bits or accessories in accordance with the operation manual.
4. Grounding is necessary to be assured, especially for the bit earth type.
5. Whenever setting the torque, switch off the tools and components.
6. Whenever changing the bit, ensure the changeover switch is in the "O" (Off) position and the tool is unplugged.
7. If the rest interval is shorter than three seconds, the heat of the motor may increase. However, it differs from the kind of screw or from the fastening torque.
8. Do not adjust the torque setting higher than the number of the torque scale mentioned below.
The number on the torque scale does not indicate the torque value of the screwdriver. The torque varies according to the type, size, and material of screws and work. Therefore, use the following diagram as references to obtain an appropriate torque.
9. Do not operate the changeover switch when the motor is running.
10. Do not use this screwdriver for tightening wood screws.
11. Whenever a tool is not being used, move the changeover switch to the "O" (Off) position and unplug the screwdriver.
12. Do not overload to the extent that the motor locks or the clutch malfunctions. May cause smoke, fire, failure or injury.
13. If the body is overheating or functioning abnormally, stop using the driver immediately and inspect it to see whether any repairs are necessary. May cause failure or injury.
14. The driver may overheat depending on the type of screw, type of screw-tightened material, or frequency of use. To avoid overheating, stop operating the driver for a time or use several drivers in alternation. Overheating may reduce the life of the product or cause failure, burns, or other injuries.
15. The fastening torque may vary depending on how the product is operated or held, the type of screw, and the fastening conditions. Use a torque wrench or similar tool to check that the fastening torque is appropriate.

3. Overview

The DLR5340, a multi-type screw fastening counter, is provided with basic features of conventional DLR5040A series, and connectable to a maximum of three electric screw drivers, integrating linking connection features. The installed microcomputer allows the user to set wide-ranging tightening conditions, prevents human errors, thereby improving high-precision tightening control. To correspond to a variety of assembling works, the unit is provided with eight standard fastening conditions and allows the user to specify channels externally. The user can set and call the respective fastening patterns, the numbers of screws to be fastened, and the collect timers.



4. Product Organization

This screw fastening counter works in a pair with any electric screwdriver (DLV30/45□□-SPC (LKU)Series).

⚠ WARNING

If the counter is used with power other than 115-V, use a screwdriver appropriate to the supply voltage to be applied. For the details, consult our sales department.

- * Use of the screw fastening counter in conjunction with a work present signal, such as one transmitted from a work sensor, is recommended. Work sensor signal input to the counter enables it to work to your full satisfaction.

Electric screwdriver + **Screw fastening counter** + **Work sensor (third-party's product)**

* Use a screwdriver conforming to the voltage specification.

5. Principles of Operation

The Screw Fastening Counter DLR5340 detects the start signal that is generated by an electric screwdriver and the torque reached signal that is generated at the completion of screw fastening to count fastening times and thus to prevent omissions along with the work sensor signal.

If, because of a fastening error (elevated screw or double fastening), a torque reached signal comes before the fastening time set on the timer built in the counter elapses, no count is recognized (count correction function).

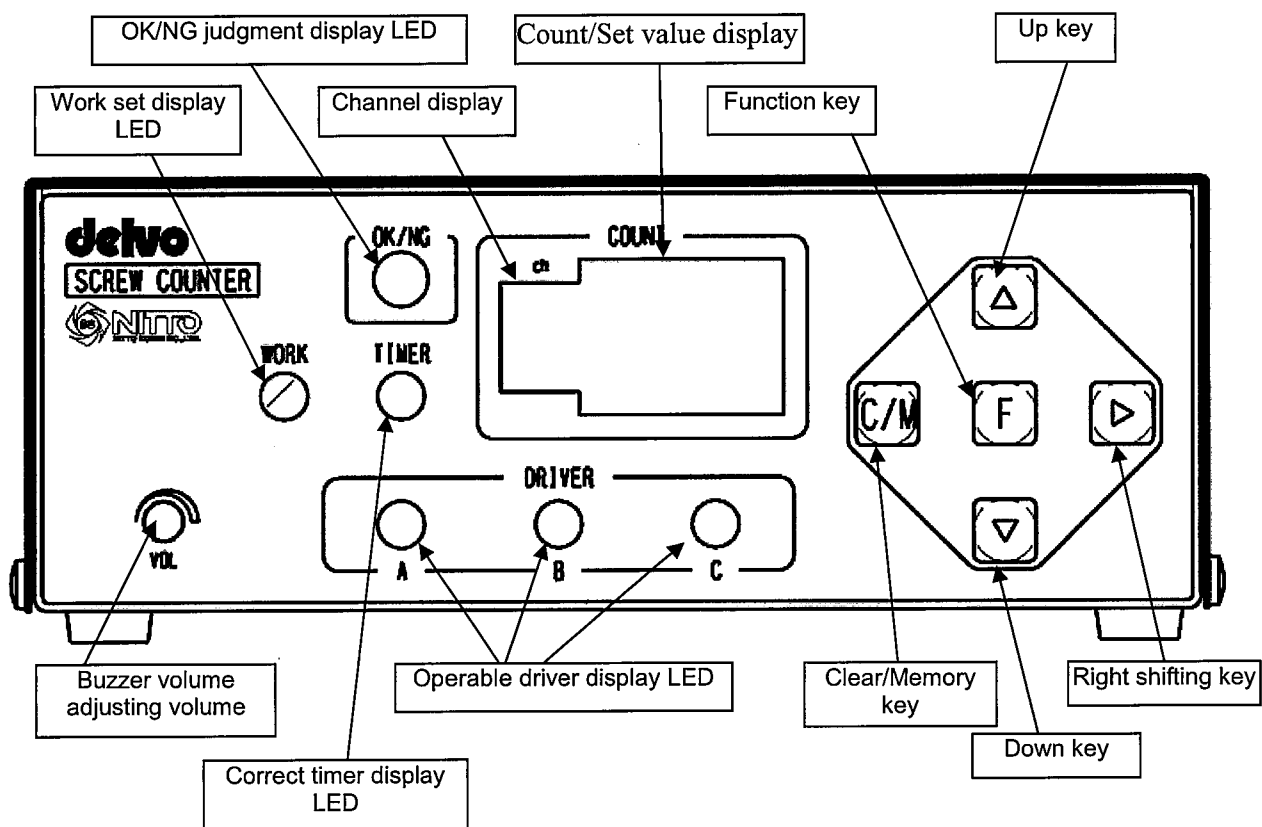
In the event of refastening, a reverse signal that is output from the electric screwdriver reverses the count by one (count return function).

6. Specifications

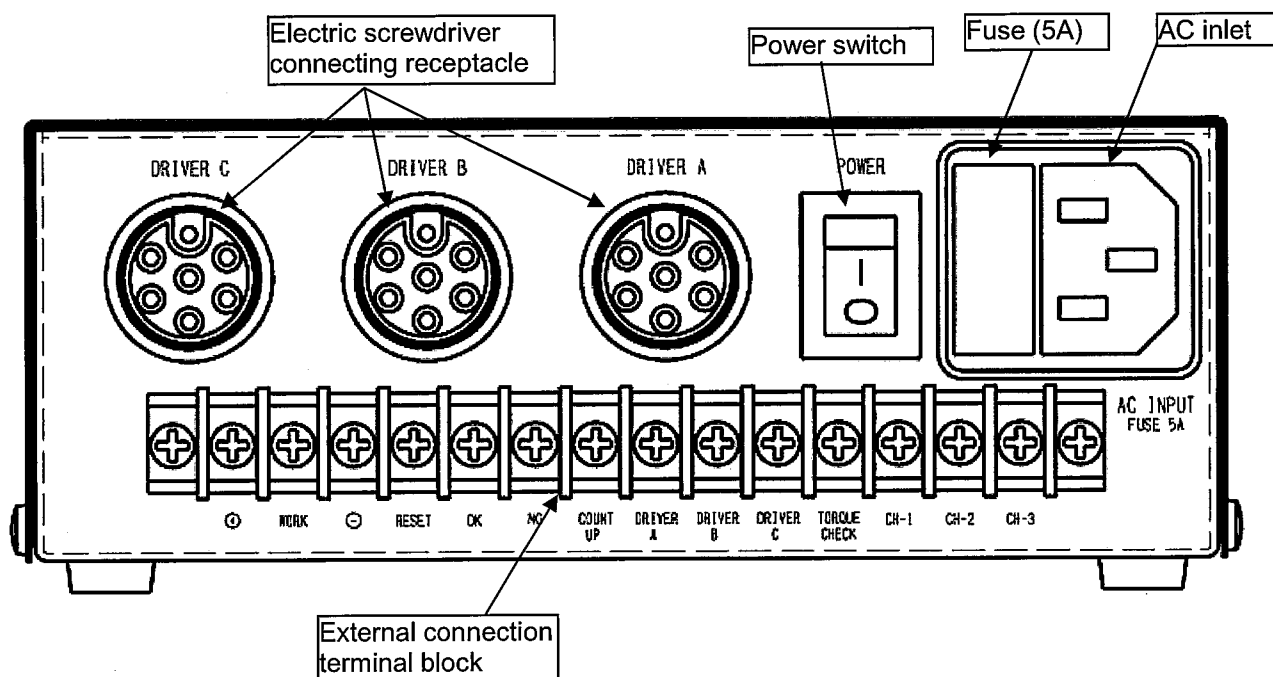
Item	Specification	Remarks
Count	0 to 99	Set with the front-panel switch (including an external count).
Number of setting channels	8ch	Input channel designations from back terminal board. (If no channel designation is input, CH1 will be selected.)
Counting method	Count-up/Count-down	Set with the rear-panel DIP switch (DIP-SW1).
Count correction function	Counted only on normal fastening	Not counted if the signal comes before the correct timer times out.
Correct timer setting	0.01 to 2.50 second With automatic correct timer	In steps of 0.01 second (set with the front-panel switch) (The automatic correct timer automatically selects the minimum value.)
Work detection function	Yes (1 input)/No	Set with the rear-panel DIP switch (DIP-SW5).
Work set timer setting	0 to 9.5 seconds	In steps of 0.5 second (set with the front-panel switch)
OK output timer setting	0 to 9.5 seconds	In steps of 0.5 second (set with the front-panel switch)
NG buzzer setting	ON(1)/ON(2)/OFF	Set with the front-panel switch.
OK buzzer setting	ON(1)/ON(2)/ ON(3)/ON(4)/ON(5)/OFF	Set with the front-panel switch.
Buzzer volume	Adjustable	Adjust with the [VOL] knob on the front panel.
Count return function	ON/OFF	Use the dip switch (DIP-SW2) on the back.
Fastening pattern setting	Six patterns	Use the front panel switches to enter "Program Mode".
Terminal block external input	WORK/RESET/ TORQUE CHECK/ch	Photocoupler input (24 VDC 5 mA consumption)
Terminal block external output	OK/NG/COUNT-UP/ DRIVER(A/B/C)	Open collector output (maximum capacitance 24 V DC 30 mA)
Parameter memory	Parameters stored in internal nonvolatile memory	When power is turned on, the memory is initialized by pressing the [C/M] key.
Power supply	Input : 100~240 V AC 50/60Hz Output : 100~240 V AC 0.5~0.21 A	Screwdriver unit matched to the available voltage used
Power consumption	65W (Power consumption only for counters is 10 W.)	Single-counter power consumption (included 24 V/200 mA external power)
Fuse rating	250 V AC/5 A x 2 fuses	φ5 x 20 glass-enclosed fuse
Temperature Range [°F]	Operating: 23 to 122 (-5 to +50 °C) Storage : -4 to 158 (-20 to +70 °C)	
Relative Humidity	Free of Dew (during both operation and storage)	
Operating Environment	less than 6557 ft (2000 m) above sea level	
Over Voltage Category	category II according to IEC60664-1	
Dimensions	5.94"(W) x 5.51"(D) x 2.36"(H) 151(W) x 140(D) x 60(H) mm	
Mass	1.76 lbs (800 g)	
Compatible screwdriver	DLV30/45□□-SPC(LKU)	Driver dedicated to the Screw Fastening Counter DLR5040A/5340-WU
Accessory	Power cord, 80" (2 m)	With 3P earth wire

7. Parts Denomination

Front



Rear



8. **Installation**

8-1 **Installation Location**

Install the screw fastening counter in a flat location with good visibility. Lay connections, such as the power cord and the screwdriver cord, along a wall surface or poles and clamp them in firm position.

8-2 **Ambient Environment**

Install the counter in a well-ventilated indoor place where there are no sources of oil, dust or sparks. If equipment generating noises is installed near the counter, it may not normally count or may output OK/NG signals incorrectly, or it may detect the noises to display "NG" or sound the NG buzzer. Therefore, in such a case, take sufficient measures against noises using electrical insulation or noise source shielding.

9. **Making Connections**

9-1 **Connecting the Power Cord**

Insert the power cord all the way into the receptacle on the rear panel. To use the counter safely, earth the power plug without fail.

* Do not turn on power at this stage.

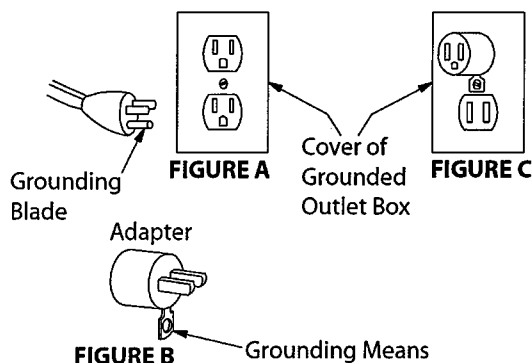
9-2 **Connecting an Electric Screwdriver**

Use an electric screwdriver dedicated to the screw fastening counter (SPC type).

With the counter powered off, insert the metallic connector of an electric screwdriver into the electric screwdriver connection receptacle.

9-3 **Grounding**

The tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with a three-conductor cord and three-prong grounding-type plug to fit the proper grounding-type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 V, it has a plug that looks like that shown in Figure A. An adapter (see Figure B) is available for connecting Figure A-type plugs to 2-prong receptacles. The green colored rigid grounding strap must be connected to a permanent ground such as to a properly grounded outlet box as shown in Figure C.



⚠ WARNING

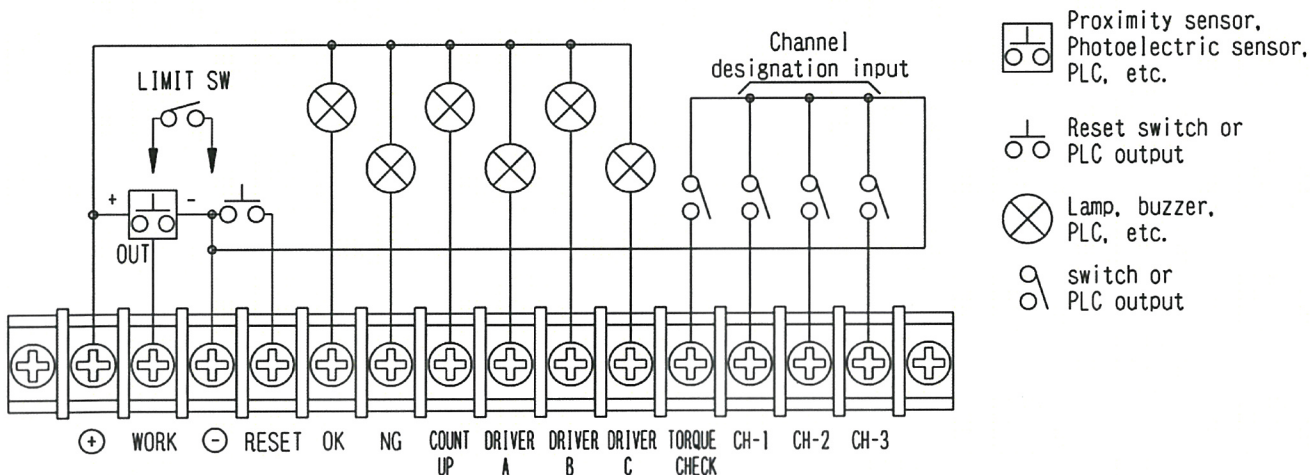
For safe use of adapters, the outlet box must be grounded. If there is any doubt, have a qualified electrician check connections.

Use only 3-wire extension cords that have 3-prong grounding type plugs and 3 pole receptacles that accept the plug. Replace or repair damaged cords.

9-4 Connecting External Signal Lines

Connect the work detecting sensor, OK/NG output signal and external reset input signal lines to the terminal block on the rear panel of the counter.

* The terminal block can be attached and detached with the lines connected.



Sample connection

* Sensors to which work detecting signals can be connected

NPN output type 3-wire sensors, such as photoelectric sensors and proximity sensors, are recommended. (2-wire sensors may not be used.)

* Recommended lead wire diameter of signal lines to be connected to the terminal block

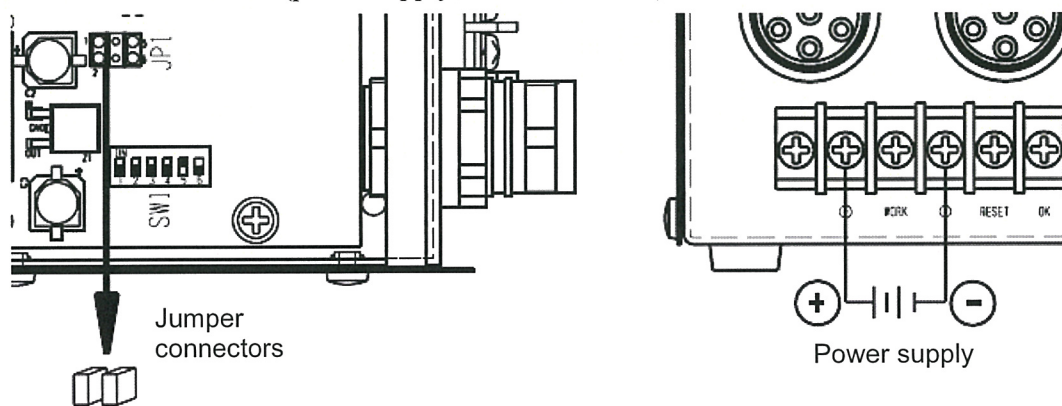
AWG20 or more

<If an external power supply is used>

If an external power supply is connected to the I/O terminal of the counter rear-panel terminal block, it is necessary to disconnect the internal power supply of the counter from the terminal block.

You can find two jumper connectors on the internal PCB-board. Turn the power switch off and remove the case cover.

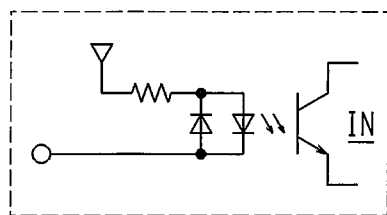
Remove two jumper connectors JP1 and JP3 and connect an external power supply to the ⊕ and ⊖ terminals of the terminal block (power supply: 12 to 24 VDC).



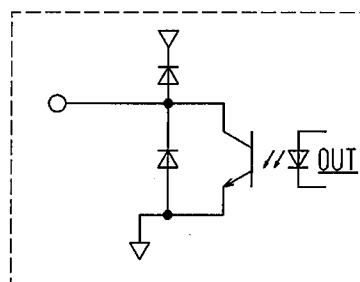
⚠ WARNING

- 1) Be sure to turn the power switch off and remove the case cover before attempting to remove two jumper connectors. Failure to do so may lead to electric shock.
- 2) Never let operators remove two jumper connectors or remove the case cover. These operations are dangerous. Only authorized personnel should handle them.
- 3) Never open the case cover for any purpose other than two jumper connectors removing.

<Terminal block I/O circuit arrangement>



Input circuit (WORK, RESET, TORQUE CHECK, ch1/2/3)



Output circuit (OK, NG, COUNT-UP DRIVER A/B/C)

<Terminal block specifications>

No.	Name	I/O	Definition	Signal timing	Remarks
1	⊕		+24 V power supply		Built-in switched power supply capacity 200 mA max.
2	WORK	Input	Work sensor input	OFF ——— ON	ON signal is kept input while work is in the fastening position.
3	⊖		Common		
4	RESET	Input	External reset input	OFF ——— ON	Switch to the on position for one second or more to trigger a reset.
5	OK	Output	OK evaluation external output	OFF ——— ON	Signal is kept on until work is released.
6	NG	Output	NG evaluation external output	OFF ——— ON	Signal is kept on until work is re-set or reset switch is pressed.
7	COUNT-UP	Output	Count signal	OFF ——— ON	Signal is switched ON for 0.1 second at successful completion of screw fastening
8	DRIVER	A	Output	OFF ——— ON	Signals from only now-operable drivers are switched on.
9		B			
10		C			
11	TORQUE CHECK	input	Torque check signal	OFF ——— ON	The driver works freely while torque check signal is being input.
12	ch	1	input	OFF ——— ON	For channel-by-channel designation, input normal signals while at operation. (Channel designation is unchangeable during operation.)
13		2			
14		3			

<I/O specifications>

Input: Photocoupler input (24 V DC max., 5 mA/1 input)

Output: Open collector (No-voltage contact rating: 24 V DC max., 30 mA/1 output)

⚠ WARNING

Output signals are in an unstable state for about 5 msec after the power switch is turned on until the internal power supply starts up. Note that the output signals may be detected depending on the signal detecting conditions of the sequencer.

⚠ CAUTION

- 1) Before making connections to the terminal block, turn off the power switch to remove concerns over counter failures or electrical shock hazards.
- 2) Sensors may malfunction under the influence of noise interferences depending on where they are installed. Implement full protection against noises interferences, as by grounding. For more details, refer to the sensor maker's instruction manual.

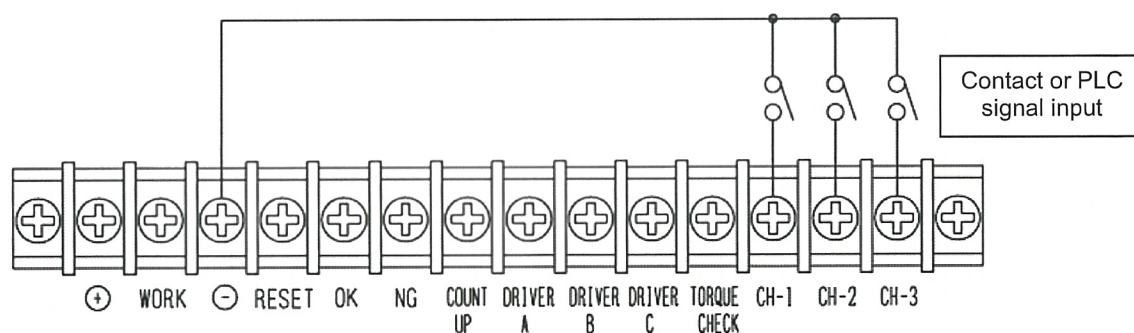
9-5 How to specify channel

You can specify respective channels by inputting contact signals from outside to the channel 1, 2, and 3 terminals on the terminal block. (Refer to paragraph 10 for items and procedures of setting channels.)

Channel-by-channel designation set value call items

O: Contact ON
x: Contact OFF

Channel No.	Terminal block ch			Fastening pattern	Number of fastening			Work set timer	Collect timer			Count return timer	NG buzzer	OK buzzer
	1	2	3		A	B	C		A	B	C			
1	x	x	x					Channel-by-channel common setting				Channel-by-channel common setting	Channel-by-channel common setting	Channel-by-channel common setting
2	O	x	x											
3	x	O	x											
4	O	O	x											
5	x	x	O											
6	O	x	O											
7	x	O	O											
8	O	O	O											



Channel designation connection method

⚠ CAUTION

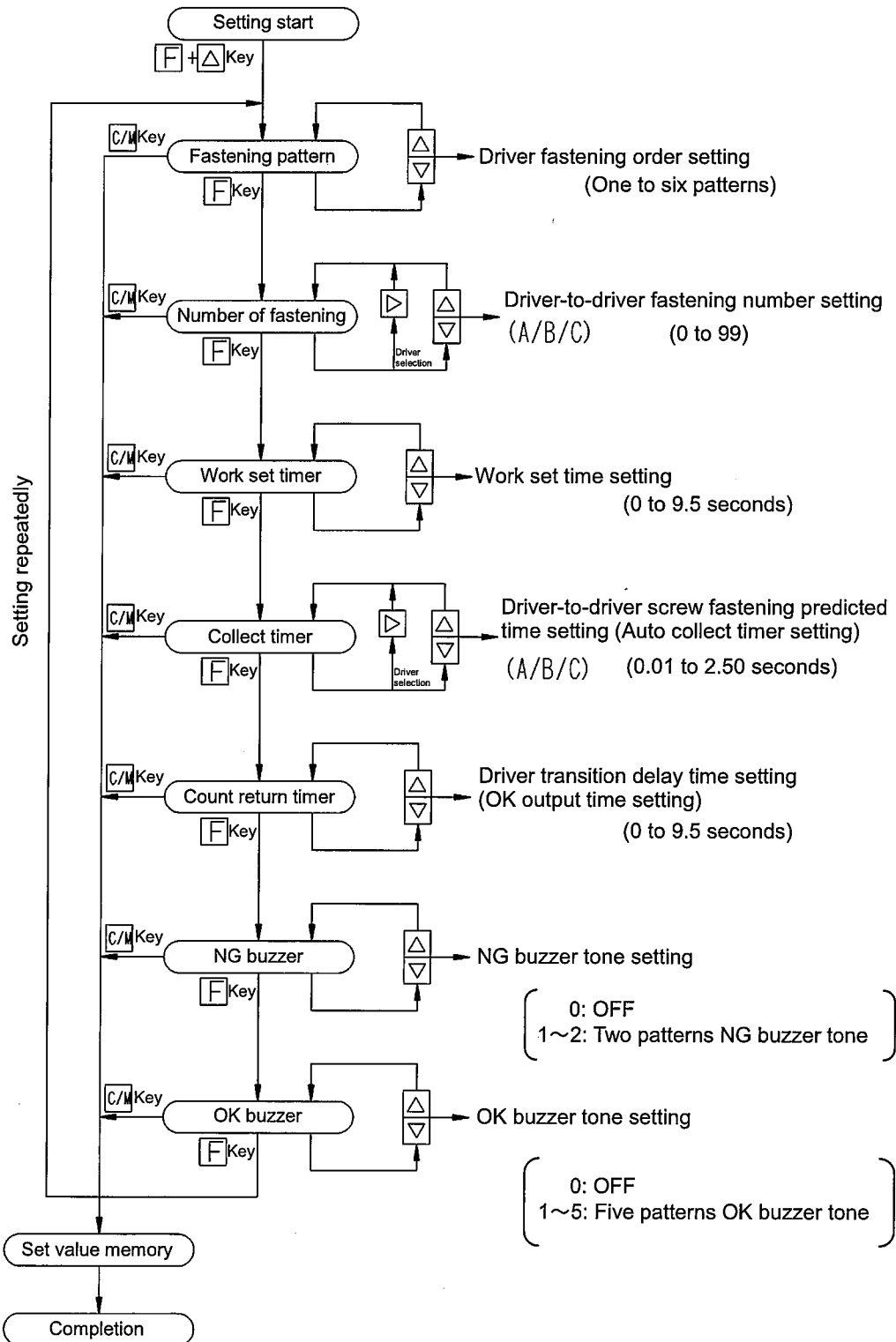
There are a number of channel-by-channel setting items; care must be taken to ensure correct setting.

10. Setup

Establish all connections and turn on the power switch on the counter back before implementing settings.

(*Do not set a work piece at this stage.)

10-1 Setting operation flow



10-1 Setting method

Enter settings to meet work-specific fastening conditions.

- 1) Press the **[F]** + **[△]** keys to invoke the setup mode.
(Press the F key first.)
- 2) Press the **[F]** key in sequence to change the setup items. (See the following table.)
- 3) To change the setting, press the **[△]** or **[▽]** key.
- 4) For items in which set values are selected for each driver, press the **[▶]** key to select a driver and then set values by using the **[△]** key or the **[▽]** key.
(Setting of count and collect timer)
- 5) In performing channel-by-channel setting, input channel specification signals externally to define items.
(Input channel number and set value will be displayed alternately.)
- 6) To enter the settings in the memory and exit from the setting mode, press the **[C/M]** key.
- 7) To check the settings, press the **[△]** key in the standby mode. Then, the settings will be displayed successively at 0.5-sec intervals.


Setup order	Setup item	Display	Setup range [△] or [▽]	Description	STEP	Default
[F] key	Fastening pattern setting	The driver LEDs light up in order of fastening.	One to six patterns	1 : A→B→C 4 : B→C→A 2 : A→C→B 5 : C→A→B 3 : B→A→C 6 : C→B→A		1
↓ [▶] key	Count setting	Each driver LED turns on.	0~99	Driver-to-driver fastening number setting The A, B, and C driver LEDs turn on.	1	1
[F] key	Work set timer setting	WORK LED (green) on	0~9.5sec	Setting of time until OK signal is output or count is returned after completion of counting	0.5	0.0
↓ [▶] key	Correct timer setting	TIMER and driver LED on.	0.01~2.50 sec	Driver-to-driver screw fastening predicted time setting The A, B, and C driver LEDs turn on.	0.01	0.05
[F] key	Count return timer setting	OK LED (green) on	0~9.5sec	OK output time setting after completion of count return delay time and counting.	0.5	0.0
↓	NG buzzer ON/OFF	NG LED (red) on	0:OFF 1:ON1 2:ON2	OFF: No buzzer sound ON1: Work release buzzer sound "pi-pi-pi-pi" ON2: Work release buzzer sound "boo-boo"		1
↓	OK buzzer ON/OFF	OK LED (green) on	0:OFF 1:ON1 2:ON2 3:ON3 4:ON4 5:ON5	OFF: No buzzer sound ON1: Completion chime "ding-dong" ON2: Completion chime "ding-dong" twice ON3: Completion beep "do-re-mi" ON4: Completion beep "pi-po" ON5: Completion beep "pip-pi-pi-pee"		1



*1) For an unused driver, set the driver count number to "0" to bypass the driver and jump to the succeeding driver.

*2) In adjusting the buzzer volume, use a flat tip screw driver to turn the volume knob provided at the lower left in the front panel. Tuning the knob anticlockwise will lower the volume.

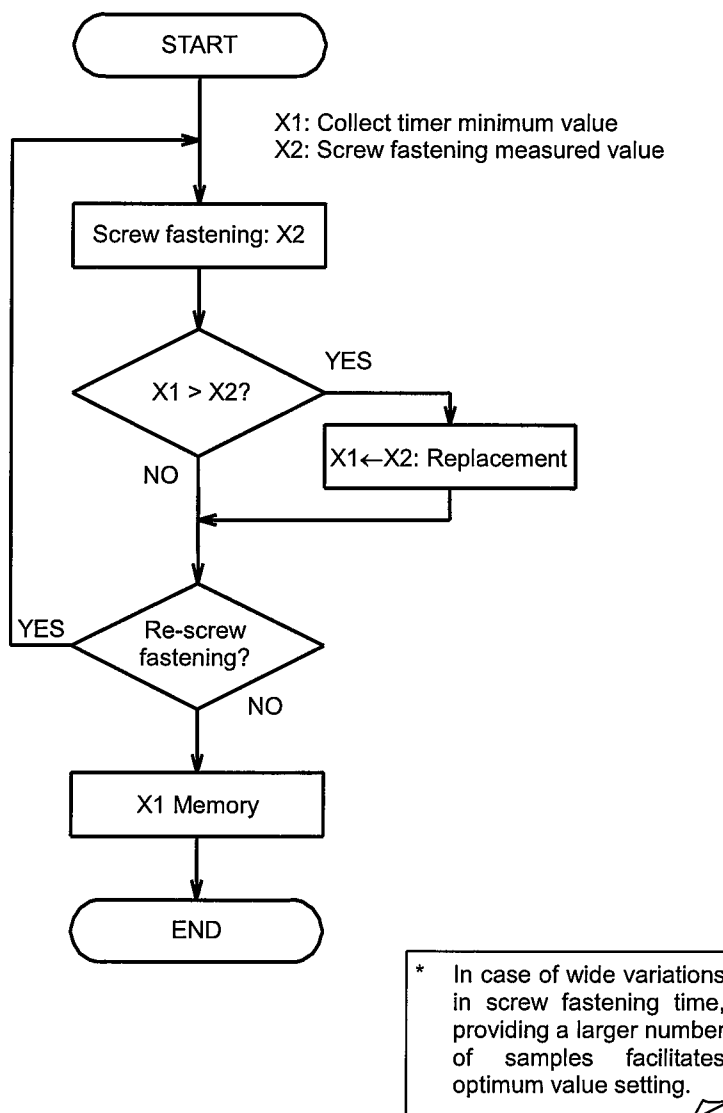
10-2 Collect timer auto setting

If you perform screw fastening to the work piece at the time of collect timer setting, the fastening time will be automatically measured and reflected to the timer set value. Repeating screw fastening several times will update the minimum value sequentially and display the value as the optimum value.

Select the driver successively with the  key to set the collect timer.

- * If a false time is displayed during collect timer auto setting (such as when torque-up is finished earlier than usual due to screw sticking), the minimum time can be cancelled by pressing the  key or the  key. In this case, set the collect timer again.

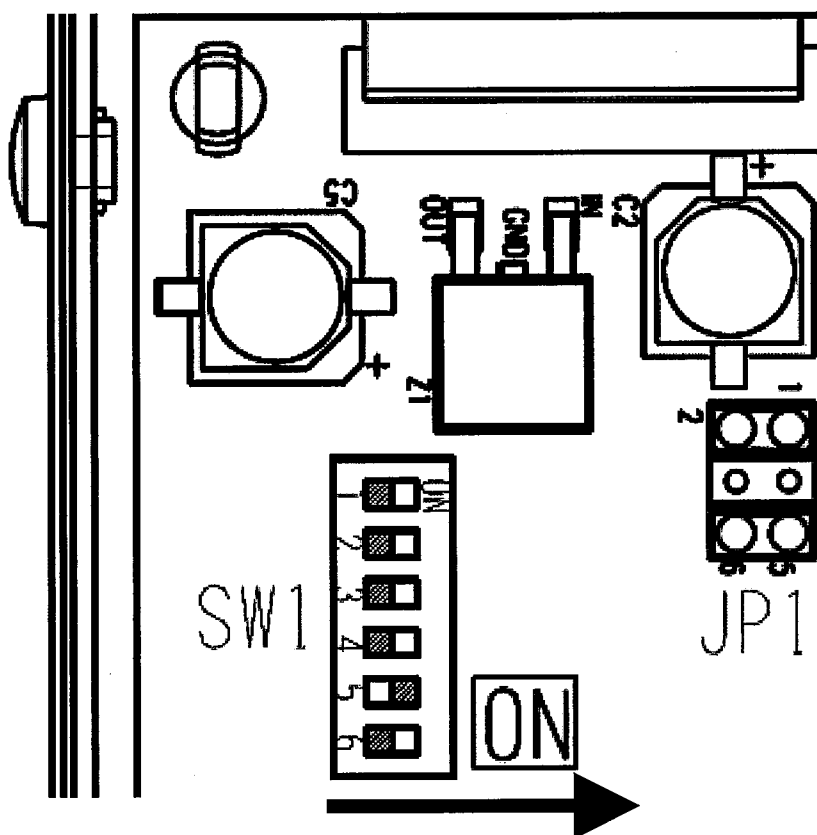
Collect timer auto setting flow



10-3 Setting Counter Rear-Panel DIP Switches

SW	Item	OFF	ON
1	Counting method setting	Count-down	Count-up
2	Count return function reset	Count return enabled	Count return disabled
3	Irregular operation alarm "boo-boo" with/without setting	Without confirmation beep	With confirmation beep
4	Operation-by-operation confirmation beep "pi" with/without setting	Without confirmation beep	With confirmation beep
5	Work sensor signal input available/disable setting	Sensor signal input available	No sensor signal input available
6	Unused		

***You can find the DIP switches on the internal PCB-board. Turn the power switch off and remove the case cover. You can now set the DIP switches.**



⚠ WARNING

- 2) Be sure to turn the power switch off and remove the case cover before attempting to set the DIP switches. Failure to do so may lead to electric shock.
- 3) Never let operators change the DIP switch settings or remove the case cover. These operations are dangerous. Only authorized personnel should handle them.
- 4) Never open the case cover for any purpose other than DIP switch setting.

<DIP switch explanation>

SW-1 Counting method setting (when shipped: set to count-down)

The fastening counting method can be changed to count-down (remaining count displayed) or to count-up (fastened count displayed). In most situations, the count-down method would be easiest to manage.

* For users of the screw fastening counters (DLR5031/5030), use of the count-up method is recommended to avoid confusion.

SW-2 Count return function reset (when shipped: set to count return enabled)

This screw fastening counter has a built-in function to reverse one count when a screw is loosened after it has been once fastened. If this function is not used, it should be disabled to avoid faulty operations.

* The count would reverse, for example, even if a screwdriver is idled by reversing after it has been fastened.

 **CAUTION**

The count would not reverse if the screwdriver is reversed when it has not been fastened at all. The screwdriver would reverse only one count even if the screwdriver is reversed twice.

SW-3 Irregular operation alarm with/without setting (Shipment: Set to without alarm.)

Alarm beep ("boo-boo") can be produced at the time of irregular operations.

(Such as counting failure due to loose screw/slipped screw/two reversal operations)

Use with NG buzzer sound setting.

* Even when the unit is set to no workpiece detection (DIP-SW5: ON), a confirmation beep is made at each operation in an efficient manner.

SW-4 Operation time confirmation beep With/Without setting (at the time of shipment: set to without confirmation beep)

Each operation can be accompanied with a confirmation beep (blip).

(At the time of setting a work piece, count-up (count-down), count return operation, and shifting the active driver)

Use the confirmation beep with OK buzzer setting.

*Even when the unit is set to no work piece detection (DIP-SW5: ON), a confirmation beep is made at each operation in an efficient manner.

SW-5 Work sensor signal input available/disable setting (when shipped: set to sensor signal input available)

Though this screw fastening counter evaluates fastening conditions on the basis of the correspondence between the work sensor signal and the fastened count. It can count fastening times in a simplified manner even when work sensor signal input is not available.

In this situation, an NG evaluation cannot be produced because only an OK evaluation is displayed and generated when the preset count and the fastened count equal. OK output is produced for the period of time set by the OK output timer in 10-1.

* The combined use of a work sensor signal is recommended to render an NG evaluation.

11. **Operating Instructions**

11-1 **Work Sensor Signal Input Available and Normal Fastening**

- 1) Connect work sensor output or a work sensor signal to the counter rear-panel terminal block. Connect external I/O signal lines to meet your usage conditions.
- 2) Turn on the power switch but not before verifying the correct connections.
- 3) Perform settings according to the usage condition.
- 4) Set the counter rear-panel DIP switches to meet your usage conditions (set DIP-SW5 to OFF).
- 5) Mount the work to be fastened on the jig.
- 6) On completing settings, ensure that the work lamp (green) on the front panel comes on and the operable driver LEDs (A/B/C) light up before starting screw fastening. If a screw is fastened successfully, the display count will decrease (increase) by one.
- 7) If you fail to fasten a screw properly during operation, reverse the driver to remove the screw (the count decreases by one) and then perform another screw fastening properly.
- 8) After a preset number of screws are fastened, the succeeding operable driver LED (A/B/C) lights up before starting another screw fastening.
- 9) When all the drivers have finished fastening screws, the OK lamp (green) lights up. (An OK buzzer is set off where settings are made.)
- 10) Unload the work from the jig and set new work in its place.

<Fastening NG>

- 1) The NG lamp (red) lights up when the work has been under-fastened or when the work is unloaded without a fastening defect being corrected.
- 2) The OK lamp (green) lights up when the work is remounted on the jig and then refastened to achieve the preset count of fastening after the defect has been verified.
- 3) To remove the work out of line as being defective, press the front-panel **C/M** key or an external reset switch for longer than 1 second.

11-2 **Work Sensor Signal Input Unavailable and Normal Fastening**

- 1) Set the counter rear DIP switch (DIP-SW5) to ON.
- 2) The OK lamp lights up automatically.
- 3) Carry out fastening the same way as described in 11-1.
- 4) The OK lamp (green) lights up when the fastening is completed.


CAUTION

- 1) Without work sensor signal input available, no NG evaluation is produced when the work is unloaded. Always watch for the OK signal in fastening work. Or turn on the dip switch (DIP-SW3) and perform operation with due attention to fastening error buzzer sound.
- 2) If you set all the count numbers of the drivers to "zero", OK signals will be output repeatedly. Do not use this setting.

11-3 Torque check mode

When the work sensor (DIP-SW5: OFF) is used, input contact signal to the "TORQUE CHECK" terminal on the terminal block in the rear of the counter, with a work unmounted. The driver is unlocked while the signal is being input, allowing the driver to work freely. The lock is released when driver torque needs to be checked during operation, or when the driver needs to be used temporarily in a place other than the line.



When the work sensor is not used (DIP-SW5 : ON), switch the mode to Torque Check by holding down the C/M key for a while or inputting external reset signal after inputting the signal to the "TORQUE CHECK" terminal.

In the Torque Check Mode, the counter displays "- - -", activating Driver A first. LED (A) is lit to indicate that Driver A is active. To activate Driver B or C, use the  key to select the one you want to activate.

* Note that only one driver can be activated at a time.

To reset the Torque Check Mode, turn off the signal to the TORQUE CHECK terminal.

12. Usage Tips

- 1) Complete terminal block connections before powering on the counter, because making such connections with the counter switched on would be most hazardous.
- 2) If you press the  key while mounting work, the count and the counter status would be reset to their defaults.
- 3) Making changes to the setting conditions while fastening work could cause the counter to malfunctions. If such changes are necessary, make them while the counter is in the standby state or before powering it on.
- 4) If you set all the count numbers of the drivers to "zero" with the sensor set to "without" (DIP-SW5:ON), OK signals will be output repeatedly. Do not use this setting.
- 5) If you stop lever operation right before the electric driver increases its torque, the counter will fail to detect torque signals amplified by inertia force, thereby changing no count displays. Do not stop operation until the electric driver is brought to a complete halt.
- 6) Be sure to loosen the screw before proceeding since when you stop operating the lever immediately after reverse rotation, the counter may fail to detect the reverse rotation signal, resulting in the malfunction of the count return function.
- 7) Avoid idling or additional fastening immediately after the start of counting to avoid incorrect counting.
- 8) If you turn on the power switch while the  key is pressed, all the settings are reset to their defaults.

13. Troubleshooting

	Symptom	Possible causes and checks	Repairing
1	The WORK lamp does not light.	<ul style="list-style-type: none"> - Is the sensor connected to the terminal board? - Is the sensor powered on? - Does the sensor detect a work? - Is the Work Set timer value too great? 	<ul style="list-style-type: none"> - Check and correct the connection. - Supply power to the sensor. - Adjust so that the sensor may detect the work. - Set an adequate Work Set timer value.
2	No counting	<ul style="list-style-type: none"> - The WORK lamp remains OFF. - The collection timer has not been expired. - The screwdriver is removed before the torque is complete. - The screwdriver is frequently applied and detached to fasten the screw. 	<ul style="list-style-type: none"> - Cause the sensor to detect the work. - Set an adequate collection timer value. - Be sure to apply the screwdriver to the screw until the torque is complete. - Be sure to complete each screw fastening without a break.
3	"NG" is displayed when a work is released.	<ul style="list-style-type: none"> - The count value is not equal to the number of actually fastened screws. - An external count has been set. 	<ul style="list-style-type: none"> - Fasten the preset number of screws. - Set the external count to OFF (0.0).
4	Inactive screwdriver	<ul style="list-style-type: none"> - The sensor does not detect the work. - The FORWARD/BACKWARD switch of the screwdriver is OFF. - The count is 0. 	<ul style="list-style-type: none"> - Place the sensor on an adequate detecting position. - Turn on the FORWARD/BACKWARD switch. - Release the work or press the [C/M] key.
5	Unknown setting		Turn on the power switch while pressing down the [C/M] key to clear all setting in memory.

*A parts list is enclosed with this manual for your reference.

*If the abnormality remains, contact the sales representative from whom you purchased the tools.

⚠ WARNING

Please have the product inspected periodically at the store of purchase or a Nitto Kohki-approved service center. Failure to perform periodic inspections may result in short circuiting.

<Set value record sheet>

* Make a copy of the sheet to keep records of set values.

Process name: _____ No. _____

Channel 1 No.	Fastening pattern	Number of screws to be fastened			Work set timer [S]	Correct timer [S]			Count return timer [S]	NG buzzer	OK buzzer
		A	B	C		A	B	C			
1											
2											
3											
4											
5											
6											
7											
8											