
INSTRUCTION MANUAL

ACCESSORIES

- W type counter switch
- E type encoder

These instructions must be read thoroughly before installing or operating screw jack so that unit would be used for long time. File instructions for future reference and for ordering of replacement parts.

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Thank you for buying our screw jack.
This instruction explain its installation,operation,maintenance,service and
so that unit would be used for long time

For motorized unit, please see enclosed instruction made by motor maker.

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General information

- This instruction is for set makers.

On the installation and usage of this product, please enclose this instruction and explain completely warnings and attentions an operation to your end user.

- If your end user installs this product; e.g. for exchange of his product, he must observe all items in this instruction.

A set maker, a customer who installs our product
An end user, a customer who uses the installed product



Caution

- Transportation, installation, operation, maintenance, and service must be performed by personnel who is familiar with this product.
- Any modifications by customers, which are out of our responsibility, are prohibited and lead to cancellation of liability.

Definitions and symbols

In this instruction, the following symbols are used for the “danger”, “warning”, and “attention”.



Danger : caution must be observed, otherwise death or serious injury may occur.



Warning : caution must be observed, otherwise death or serious injury might occur.



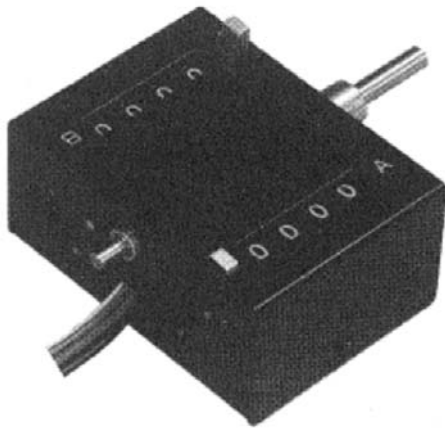
Caution : caution must be observed, otherwise slight injury or product damage might occur.

Checking the products

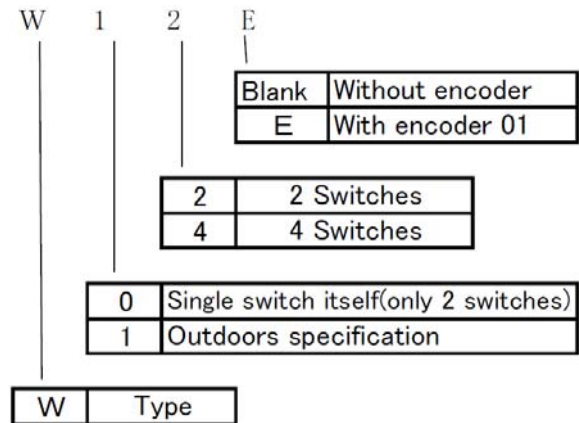
Please check the following points

- Please make sure if the product is the same as the order by checking the specification of itself and the nameplate.
- Please make sure if the product is damaged during the delivery.
- Please keep the product in dry and airy place when you will not use the product soon.

W type counter switch



●Counter switch nominal symbol



●Basic specification

Item	Specification	
Type	W 0 2 ・ W 0 2 E ・ W 1 2 E	W 1 4 E ・ W 1 4 E
Display	White letters× 2	White letters× 4
Display figure	4	
Setting mode	Reset button(lock type)	
Setting range	9 9 9 9 ～ 2 0 0 0 (8000count)	
Switch type	A V T 3 2 5 4 (Panasonic)	
Number of switch	2	4
Electric capacity of switch	A C 2 5 0 V 3 A	
Allowable input speed	5 0 0 r p m	
Ambient temperature	－ 2 0 ～ 7 0 ℃	
Humidity range	Less than 85%RH	
Self-holding range	0 0 0 0 Signal～ 1 9 9 9	
Count number	1 / r e v (Single counter 10 / rev)	
Direction of rotation	In case of clockwise rotation(CW),indication of B is Increase number and A is decrease number (can rotate clockwise or counter clockwise)	

●Output status of micro-switch

(1) In output status

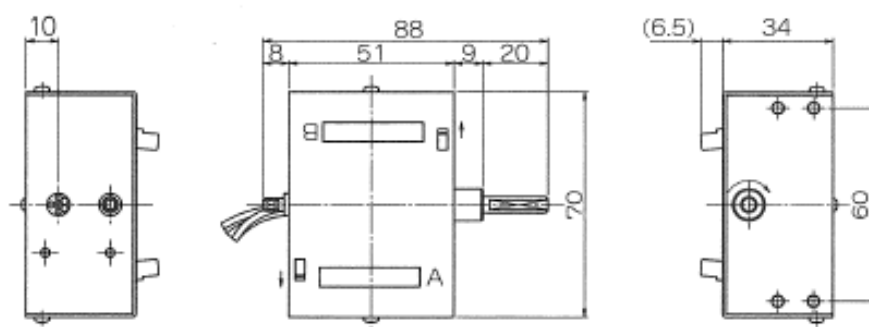
(Output self-holding indicate 0000-1999)



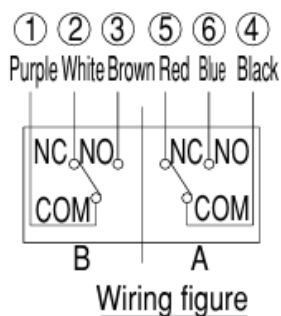
(2) In setting status (indicate 9999-2000)



●Outline Drawing



●Switch output status



●Operation method

Reduction	Load	A operation ←	→ B operation	A	B
CW	① ②			Setting value	0000 (Transmit)
	① ③				
CCW	④ ⑤			0000 (Transmit)	Setting value
	④ ⑥				

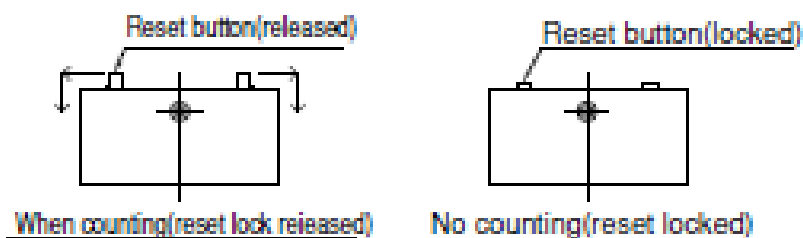
Set range

Transmitpoint Transmitpoint

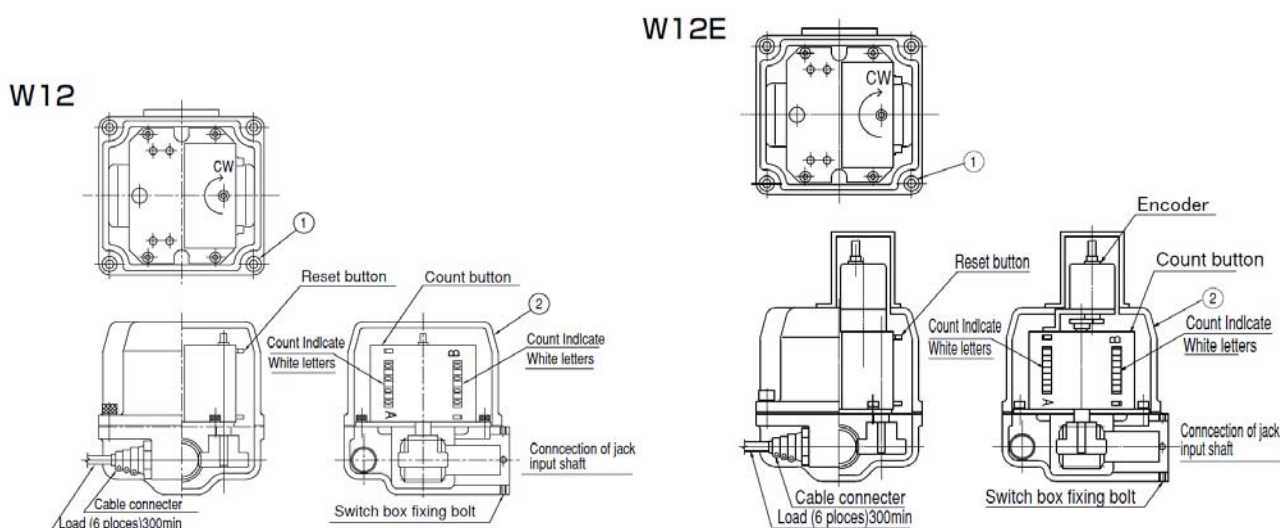
Operation explanation Connection(on)
 Connection point(off)

●Structure explanation

- ① and ② cover can be removed if loosen bolts.
- Switch will be at locked condition if slide the counter switch reset button and push down.
- It is ready to operate when output is at locked condition(NO-COM)



- Set up position to upper limit or lower limit, then release re-set button in counter switch.
- By releasing the lock of counter switch, located position will be at 0000 count, then complete set up (when screw shaft replaced at original position by turning input shaft, make sure to start count toward reduction side.)



【⚠ Caution】

Please be careful that resetting the device during operation or after configuration is complete may alter the settings and result in a hazardous condition.

Upon resetting, the count value becomes "0000," and the output state of the built-in microswitch becomes "NC-COM."

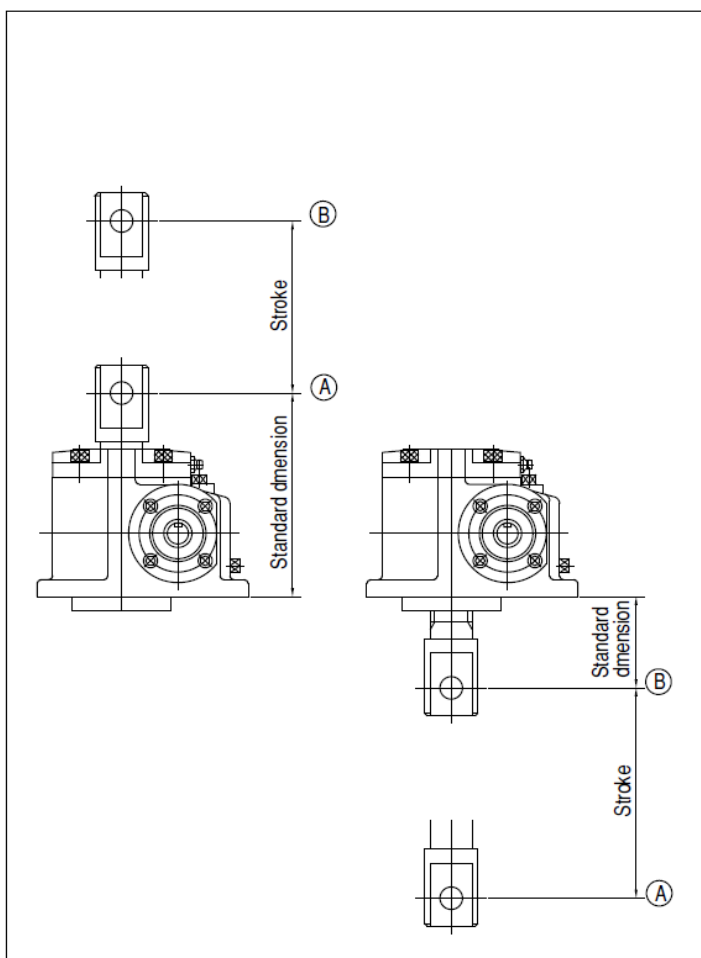
●Setting procedure

This switch is almost maintenance free type. Basically, switch is shipped without setting the counter. Adequate setting is required in accordance with following setting procedure. Makishinko can set up the switch prior to shipment upon requested,

- 1.●Lock the reset button, then start setting while operation states.
- 2.●At the position of (A) or (B), release both re-set button in counter switch. (refer to figure 2.)
- 3.●Rotate the screw to desired position by rotating input shaft, then set to the release condition by pushing the re-set button of add-count side. (please refer to figure 1 structure explanation)
- 4.●Push back the screw to the original position by rotating input shaft to the opposite direction, then set to the release condition by pushing re-set button in add-count side. Completed the setting.

(Example 1)When set to 200
9800 (10000-200)
Digit of display when
transmit:0000

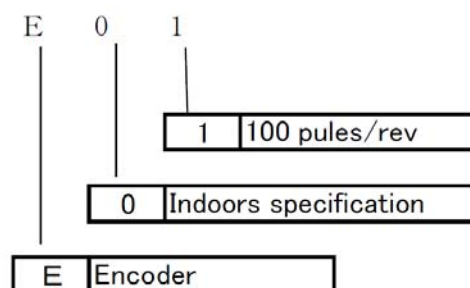
(Example 2)When set to 5005
4995(10000-5005)
Digit of display when
transmit:0000



Encoder (Incremental)



●Encoder nominal symbol



●Electric specification

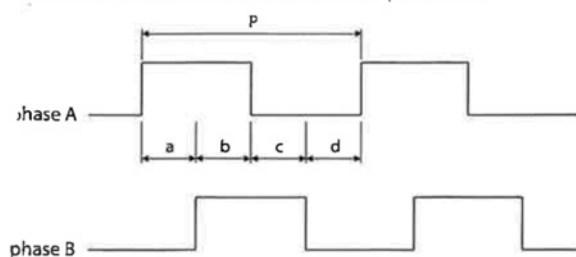
TYPE	E 0 1
Power supply voltage	DC 5~12V ±5%
Output signal	90°degress Phase 2 signals
Output voltage (H)	DC 4~11V
Output voltage (L)	Less than DC 0.5V
Max reaction speed	60kHz
Current consumption	Less than 40 mA
Input current from outside	Less than 20 mA
Output impedance	2 kΩ
Range temperrature	-10~70°C

●Mechanical specification

TYPE	E 0 1
Allowable max speed	6000 rpm
Inertia of shaft	Less than 2g · cm ²
Starting torque	100mN · cm
Rotating angle acceleration	1x10 ⁵ rad/sec ²
Allowable radial load	Less than 10 N
Allowable thrust load	Less than 5 N
Anti vibration	10 to 55Hz · 1.5mm · 2h
Anti impact	50 G/11ms
Weight(Approximately)	100g (include cable of 0.5m)

●Output Waveform

→ clockwise rotation when viewed from the top of the shaft.



- Signal A and Signal B are 90° quadrature

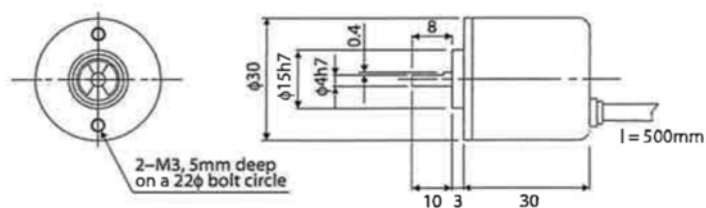
$$P = \frac{1}{PPR}$$

- Accuracy

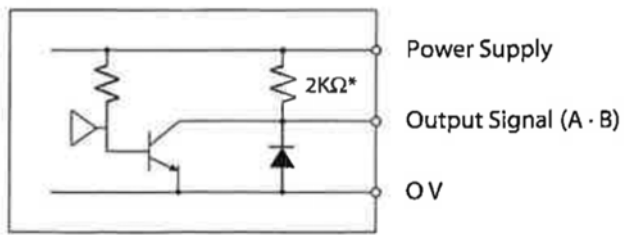
$$a \cdot b \cdot c \cdot d = \frac{P}{4} \pm \frac{P}{8}$$

$$h = P \pm \frac{P}{2}$$

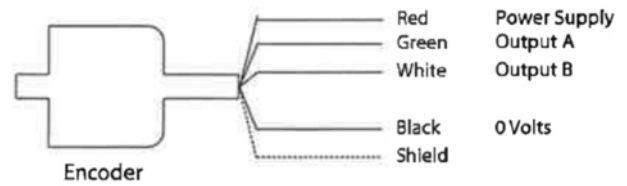
●Outline Drawing



●Output wiring



●Connections



●Handling guide

- To protect an encoder from any shock or vibration that may be caused by the joining machine, put the center of encoder's shaft and machine's shaft together without aberration and inclination.
- Be sure to wire the encoder correctly as a wrong wiring may cause the inner circuit breakdown.
- Do not wire the cable parallel with other power lines from the protection against the noise.
- Use a shield wire for the extension of cable.

Guarantee of product

The period and range of guarantee

1. Troubles, which occurs in the shorter of two periods: in 18 months after delivering the product or in 12 months after starting running the product, and which is definitely caused by our faults in our designing and/or manufacturing, are guaranteed. In this case, repair of the product or replacement of the product or the parts is preformed free of charge.
2. If our product is used abroad, we make arrangement beforehand and decide the contents of guarantee. Without this arrangement, we send the product or the parts there instead.

Matters beyond the range of guarantee

The following matters are not guaranteed.

1. Troubles and damage of our product caused by user's improper usage.
2. Troubles and damage of our product caused by repair and modifications by users.
3. Exchange of expendable supplies.
4. Troubles and damage of our product caused by usage over limit of catalogue.
5. Troubles and damage of our product caused by natural disasters (e.g. earthquakes and floods), a fire, and special external factors.

For inquiry about our products, regardless of the period of guarantee, contact our nearest sales office.

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