

# COUNTER/TIMER FXS SERIES

## M A N U A L



: It indicates an upgraded part.

Thank you very much for selecting Autonics products.  
For your safety, please read the following before using.

### Caution for your safety

- \*Please keep "Caution for your safety" to avoid accidents or damages as using it correctly.
- \*The meaning of 'Warning' and 'Caution' is as follows;
  - Warning** In case a serious injury or dead may be occurred.
  - Caution** In case a little injury or damage of this unit may be occurred.
- \*The meaning of the mark on the product and manual is as follows;
  - is a caution mark for danger in special condition.

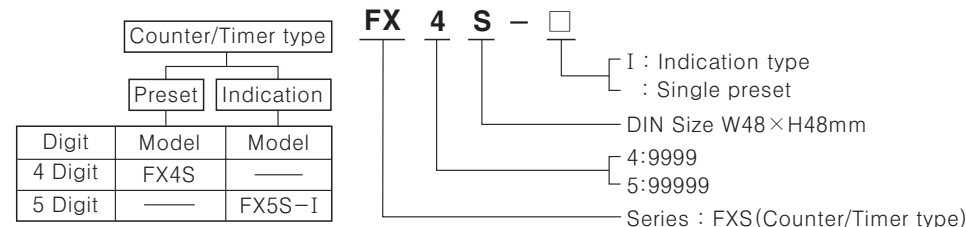
### Warning

- Please use it with double safety devices when it is used at the equipments which may cause damages to human life or assets. (Ex:Nuclear power control, Medical equipment, Vehicle, Train, Air plane, Combustion apparatus, Entertainment or Safety device etc.)**  
It may cause a fire, human life or assets.
- This unit must be mounted on Panel.**  
It may give an electric shock.
- Do not repair or checkup when power on.**  
It may give an electric shock.
- Do not disassemble and modify this unit, when it requires. If needs, please contact us.**  
It may give an electric shock and cause a fire.

### Caution

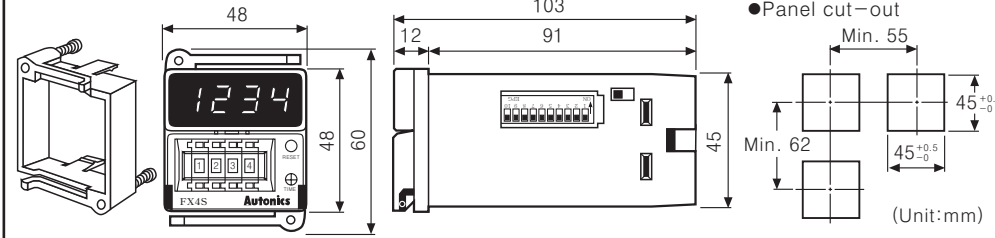
- This unit shall not be used outdoors.**  
It might shorten the life cycle of the product or give an electric shock.
- When wire connection, No. 20AWG(0.50mm<sup>2</sup>) should be used and screw bolt on terminal block with 0.74N · m to 0.90N · m strength.**  
It may result in malfunction or fire due to contact failure.
- Please observe specification rating.**  
It might shorten the life cycle of the product and cause a fire.
- Do not use the load beyond rated switching capacity of Relay contact.**  
It may cause insulation failure, contact melt, contact failure, relay broken, fire etc.
- In cleaning the unit, do not use water or an organic solvents.**  
It might cause an electric shock or fire that will result in damage to the product.
- Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray of the sun, radiant heat, vibration, impact etc.**  
It may cause explosion.
- Do not inflow dust or wire dregs into inside of this unit.**  
It may cause a fire or mechanical trouble.

### Ordering information



\*The above specification are changeable without notice anytime.

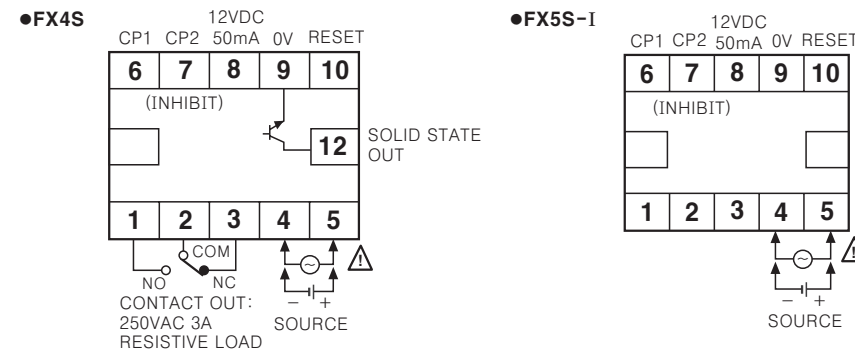
### Dimensions



### Specifications

Series	FXS	
Digit	4	5
Model	Single preset	FX4S
	Double preset	—
	Indication type	FX5S-I
Power supply	AC power	100-240VAC 50/60Hz
	DC power	12-24VDC
Allowable voltage range	90 to 110% of rated voltage	
Power consumption	AC power	Indication type : Approx. 4.7VA, Single preset : Approx. 5.7VA
	DC power	Indication type : Approx. 2.8W, Single preset : Approx. 3W
Max. counting speed of CP1, CP2	30cps/5kcps selectable by DIP switch	
Min. input signal width	INHIBIT input	Approx. 20ms
	RESET input	—
Input method	CP1, CP2 input (INHIBIT)	Input logic is selectable [Voltage input]Input impedance is 5.4kΩ, "H" level:5-30VDC, "L" level:0-2VDC [No-voltage input]Short-circuit impedance:Max. 1kΩ, Residual voltage:Max. 2VDC, Open-circuit impedance:Min. 100kΩ
One-shot output time	0.05 to 5sec	
Control output	Con-tact	Type SPDT(1c)
	Capacity	250VAC 3A resistive load
	Solid-state	Type NPN open collector
	Capacity	30VDC Max. 100mA Max.
Memory retention	10 years(EEPROM)	
External sensor power	12VDC ±10% 50mA Max.	
Ambient temperature	-10 to 55°C (at non-freezing status)	
Storage temperature	-25 to 65°C (at non-freezing status)	
Ambient humidity	35 to 85%RH	
Insulation resistance	100MΩ (at 500VDC)	
Dielectric strength	2000VAC 50/60Hz for 1 minute	
Noise immunity	AC power	±2kV the square wave noise(pulse width:1μs) by the noise simulator
	DC power	±500V the square wave noise(pulse width:1μs) by the noise simulator
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1 hour
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical	300m/s <sup>2</sup> (Approx. 30G) 3 times at X, Y, Z direction
	Malfunction	100m/s <sup>2</sup> (Approx. 10G) 3 times at X, Y, Z direction
Relay life cycle	Mechanical	Min. 10,000,000 times
	Electrical	Min. 100,000 times(250VAC 3A resistive load)
Weight	AC power	Approx. 147g
	DC power	Approx. 153g
Approval		

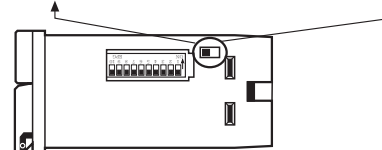
### Connections



### Input logic selection

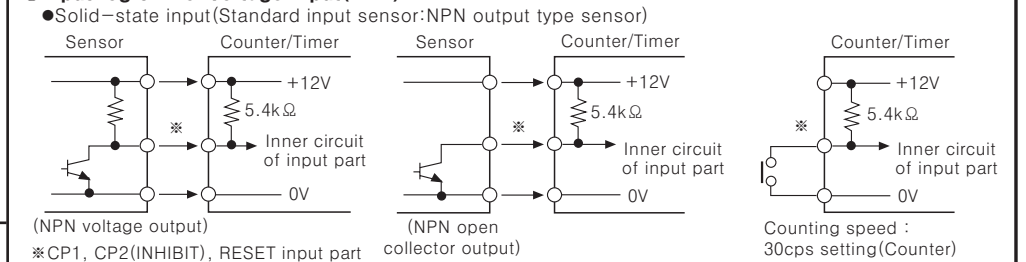
\*Please be sure to turn power OFF before changing input logic.

- No-voltage input
  - NPN  PNP
- Voltage input
  - NPN  PNP

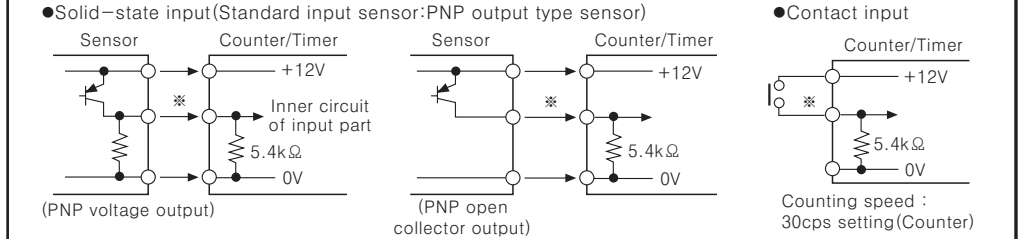


### Input connection

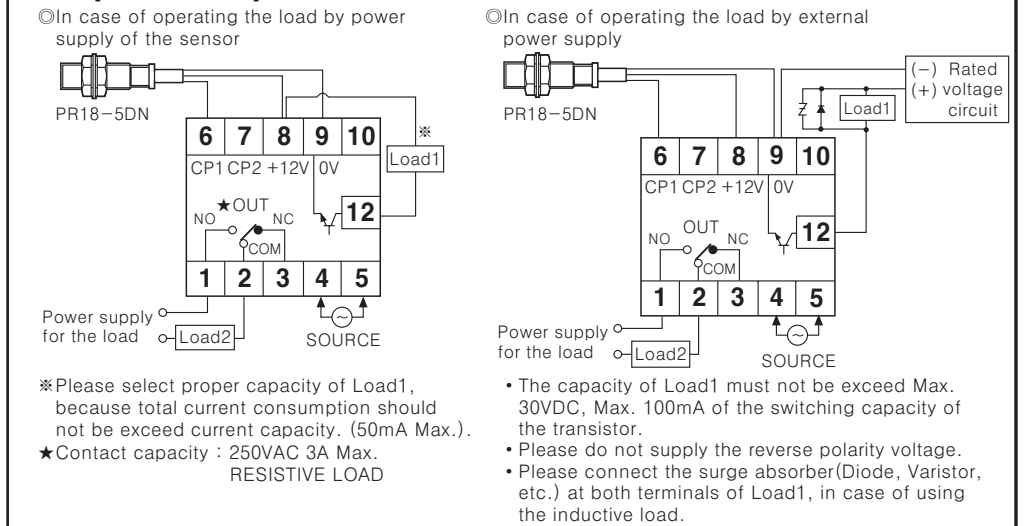
#### Input logic : No-voltage input(NPN)



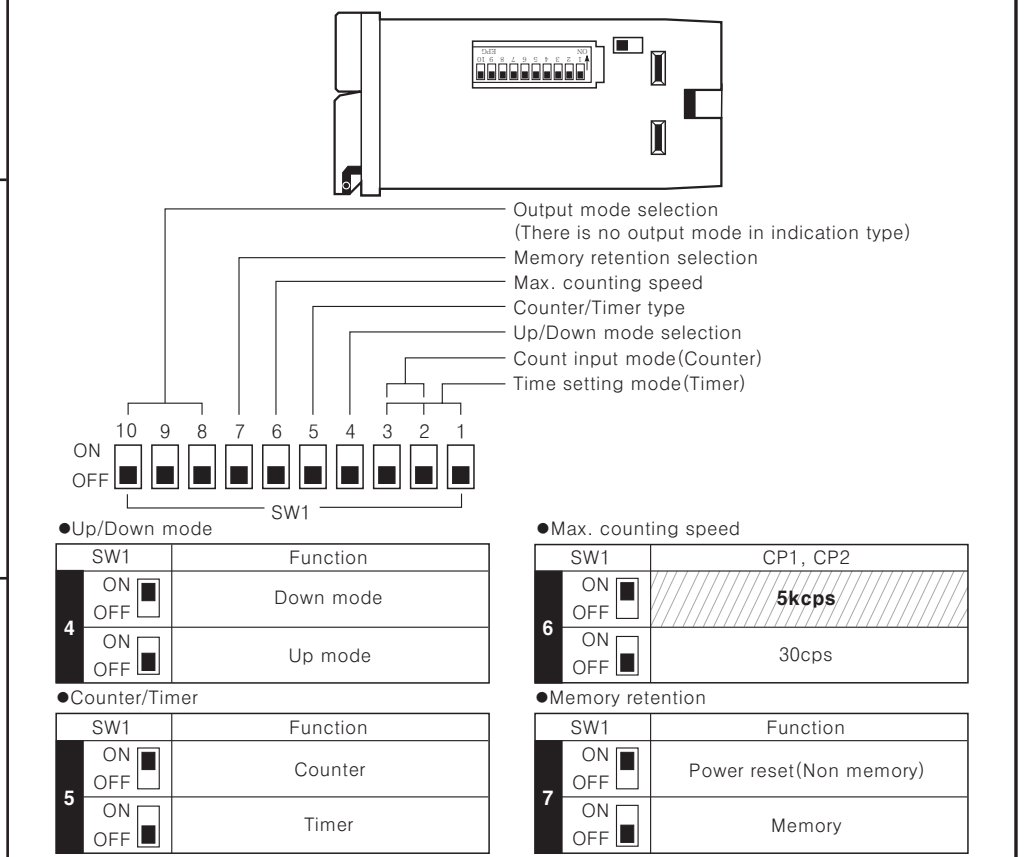
#### Input logic : Voltage input(PNP)



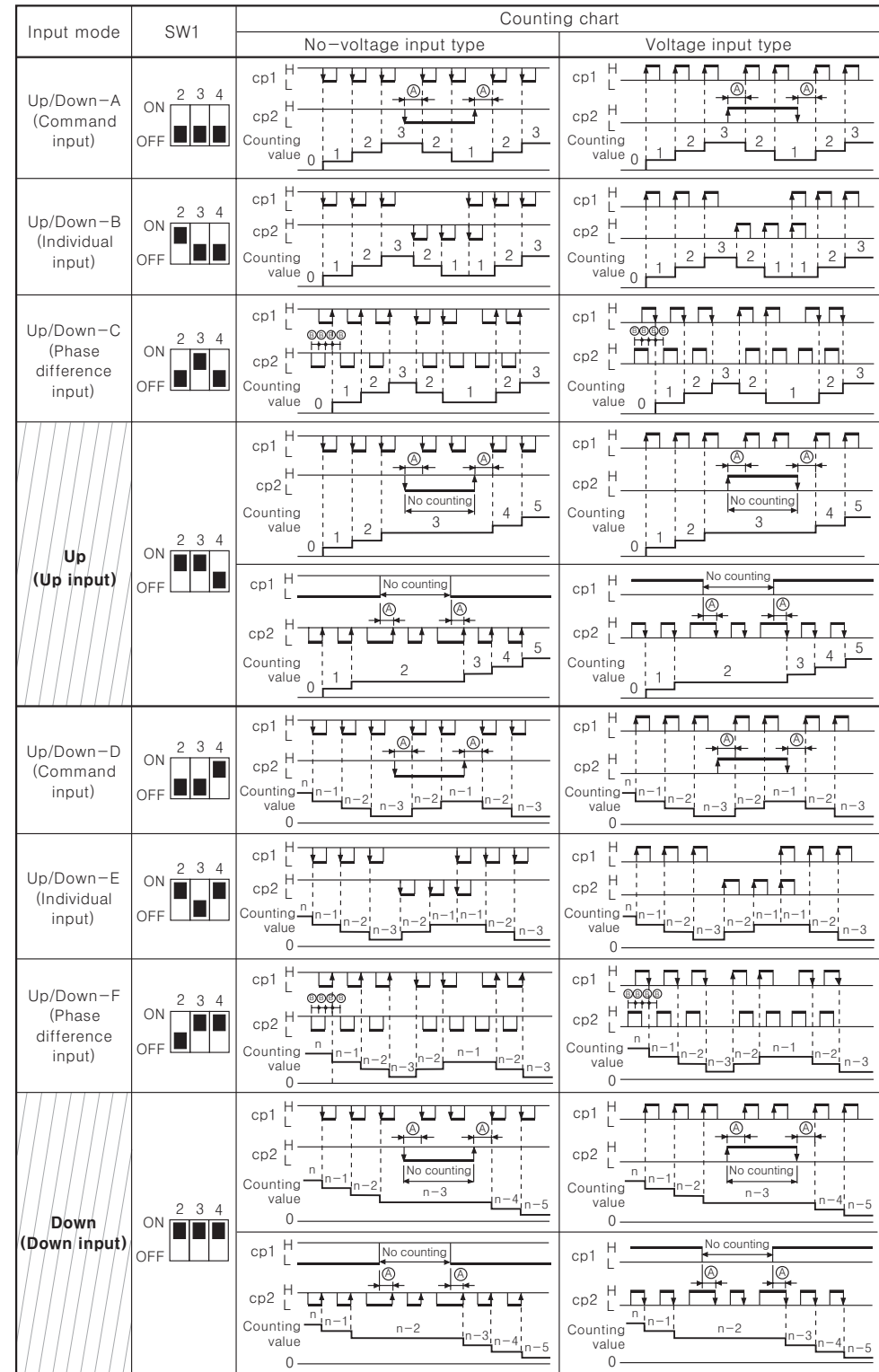
### Input & output connection



### Selection by DIP switches



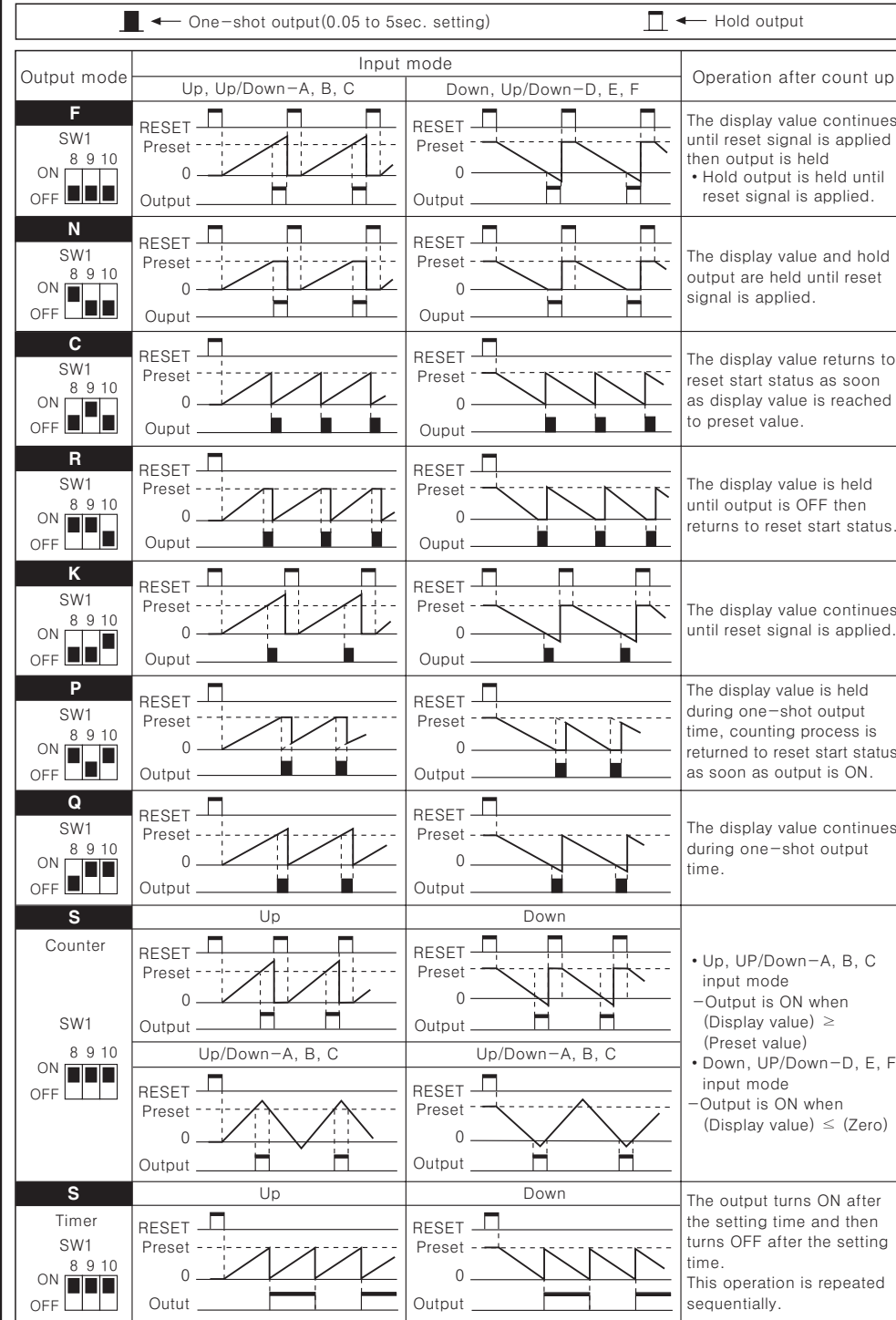
## Input operation mode(Counter)



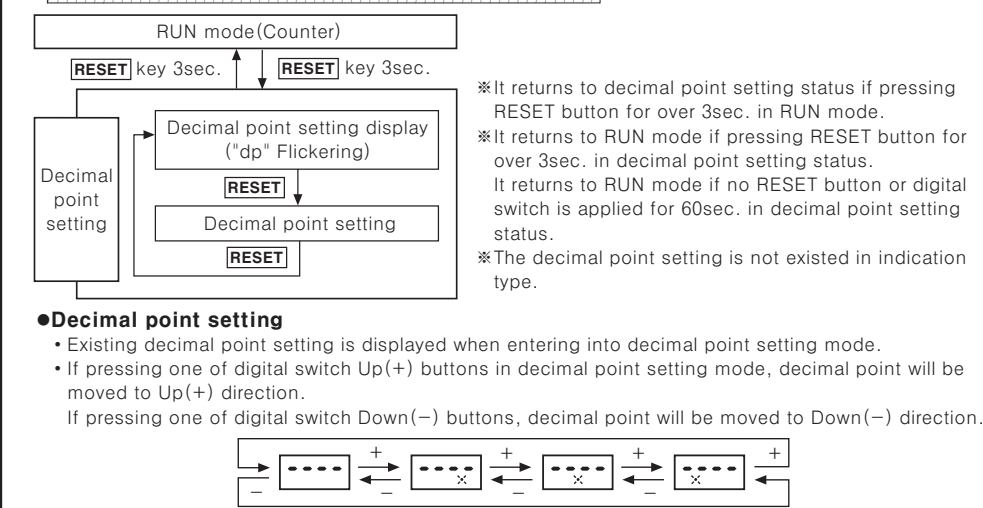
## Input operation mode(Timer)

SW1	4digit	5digit	SW1	4digit	5digit
ON OFF	1 2 3 99.99sec	1 2 3 9999.9sec	ON OFF	1 2 3 999.9min	1 2 3 9999.9min
ON OFF	1 2 3 999.9sec	1 2 3 99999sec	ON OFF	1 2 3 99hour 59min	1 2 3 9hour 59min 59sec
ON OFF	1 2 3 9999sec	1 2 3 9min 59.99sec	ON OFF	1 2 3 999.9hour	1 2 3 999hour 59min
ON OFF	1 2 3 99min 59sec	1 2 3 99min 59.9sec	ON OFF	1 2 3 9999hour	1 2 3 9999.9hour

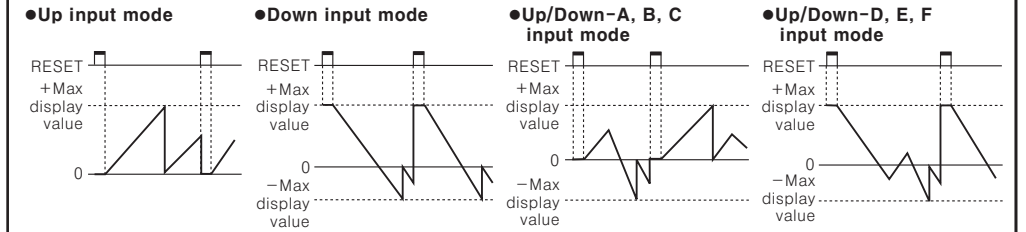
## Output operation mode



## Decimal point setting(Counter)



## Counting operation of indication model(FX5S-I)



## Caution for using

- DIP switch setting  
Please be sure to turn power OFF before changing Counter/Timer DIP switches setting.  
If DIP switches setting is changed in power OFF, Counter/Timer must be reset by manual reset or external reset after power ON.
- INHIBIT(When using as Timer)  
①Please apply INHIBIT signal when stopping the time processing in a while.  
②The time continues when taking off INHIBIT signal.
- Min. signal width of CP1, CP2 input  
\*Please make duty ratio(ON/OFF) 1:1.  
\*\*Min. signal width 30cps:Max. 16.7ms  
5kcps:Max. 0.1ms
- Max. counting speed  
This is respond speed per 1sec. when the duty ratio(ON/OFF) of input signal is 1:1.  
If duty ratio is not 1:1, the respond speed will be getting slow against input signal and also the width between ON and OFF should be over min. signal width. And also one of ON width and OFF width is under min. signal width, this product may not response.
- Error

Error display	Error contents	Return method
Err0	Zero setting value status	Change setting value which is not zero

- \*Output is OFF when error is displayed.  
\*No Error display is appeared in indication type.
- Power  
①The inner circuit voltage starts to rise up for the first 100ms after power on, the input may not work at this time. And also the inner circuit voltage drops down for the last 500ms after power off, the input may not work at this time.  
②Please use the power within rating power and apply or cut the power at once to prevent from chattering.
  - Input signal line  
①Shorten the cable distance between the sensor and this product.  
②Please shielded wire for input signal needed to be long.  
③Please wire input signal line separated from power line.
  - When test dielectric voltage and insulation resistance of the control panel with this unit installed.  
①Please isolate this unit from the circuit of control panel.  
②Please make all terminals of this unit short-circuited.
  - Do not use this unit at below places.  
①Place where there are severe vibration or impact.  
②Place where strong alkalis or acids are used.  
③Place where there are direct ray of the sun.  
④Place where strong magnetic field or electric noise are generated.
  - Installation environment  
①It shall be used indoor  
②Altitude Max. 2000m  
③Pollution Degree 2  
④Installation Category II.
- ※It may cause malfunction if above instructions are not followed.

## Main products

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHO/LINE SPEED/PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM

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