

**Autonics**

# COUNTER/TIMER FX Y SERIES

## M A N U A L



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.

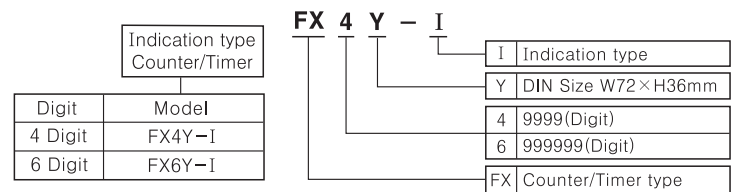
### Warning

- 1. Please use it with double safety devices when it is used as 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.
- 2. This unit must be mounted on Panel.**  
It may give an electric shock.
- 3. Do not repair or checkup when power on.**  
It may give an electric shock.
- 4. 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.

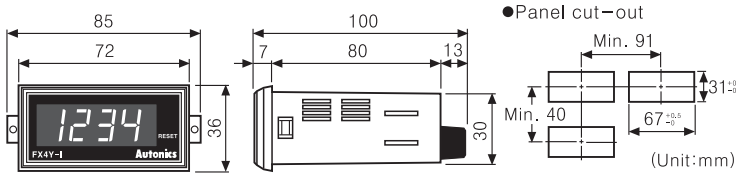
### Caution

- 1. This unit shall not be used outdoors.**  
It might shorten the life cycle of the product or give an electric shock.
- 2. 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.
- 3. Please observe specification rating.**  
It might shorten the life cycle of the product and cause a fire.
- 4. 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.
- 5. 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.
- 6. Do not inflow dust or wire dregs into inside of this unit.**  
It may cause a fire or mechanical trouble.

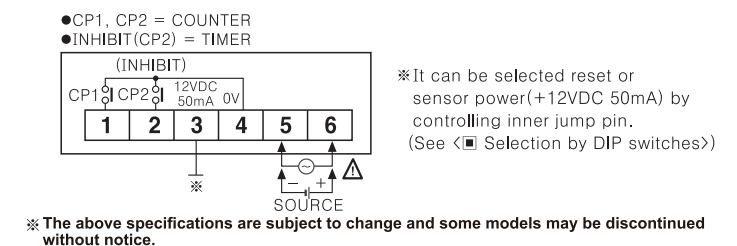
### Ordering information



### Dimensions



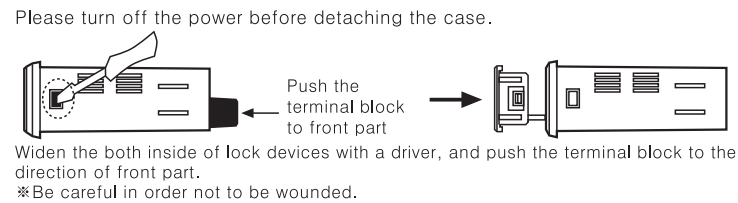
### Connections



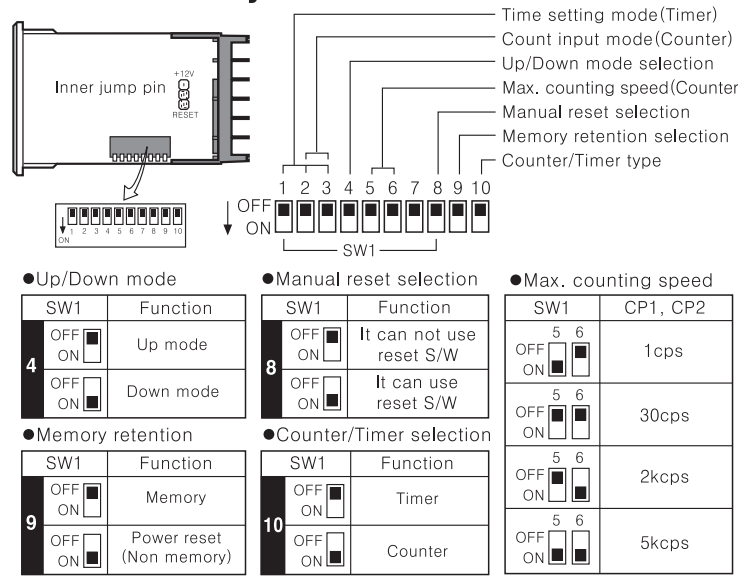
### Dimensions

Series	FX Y	
Digit	4	6
Model	Single preset	
	Double preset	
Indication	FX4Y-I	FX6Y-I
	AC power	100-240VAC 50/60Hz
Power supply	AC/DC power 12-24VAC 50/60Hz, 12-24VDC	
Allowable operation voltage	90 to 110% of rated voltage	
Power consumption	AC power Approx. 4.5VA(240VAC 50/60Hz)	
AC/DC power	Approx. 4.5VA(24VAC 50/60Hz), Approx. 2.8W(24VDC)	
Max. counting speed for CP1, CP2	1cps/2kcps/5kcps/30cps selectable by DIP switch	
Min. input signal width	INHIBIT input RESET input Approx. 20ms	
Input method	CP1, CP2 input No-voltage input Short-circuit impedance:Max. 470Ω Residual voltage:Max. 1VDC Open-circuit impedance:Min. 100kΩ	
RESET input		
Memory retention	10 years(EEPROM)	
Power for external sensor	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	Min. 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
	AC/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 1hour
	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) in X, Y, Z directions for 3 times
	Malfunction	100m/s <sup>2</sup> (Approx. 10G) in X, Y, Z directions for 3 times
Life cycle	Semi-permanent	
Approval	UL (100-240VAC 50/60Hz)	
Unit weight	Approx. 130g	Approx. 132g

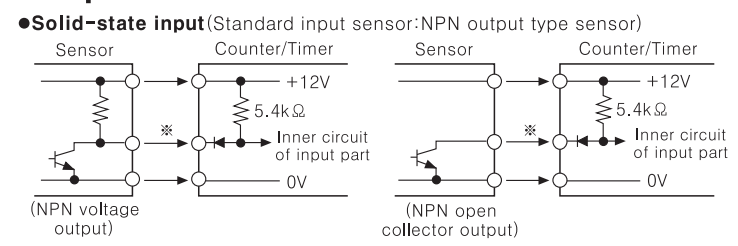
### Case detachment



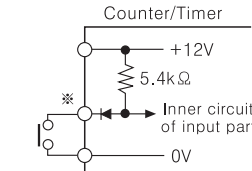
### Selection by DIP switches



### Input connection



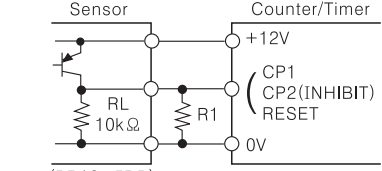
### Contact input



Counting speed :  
1 or 30cps setting(Counter)

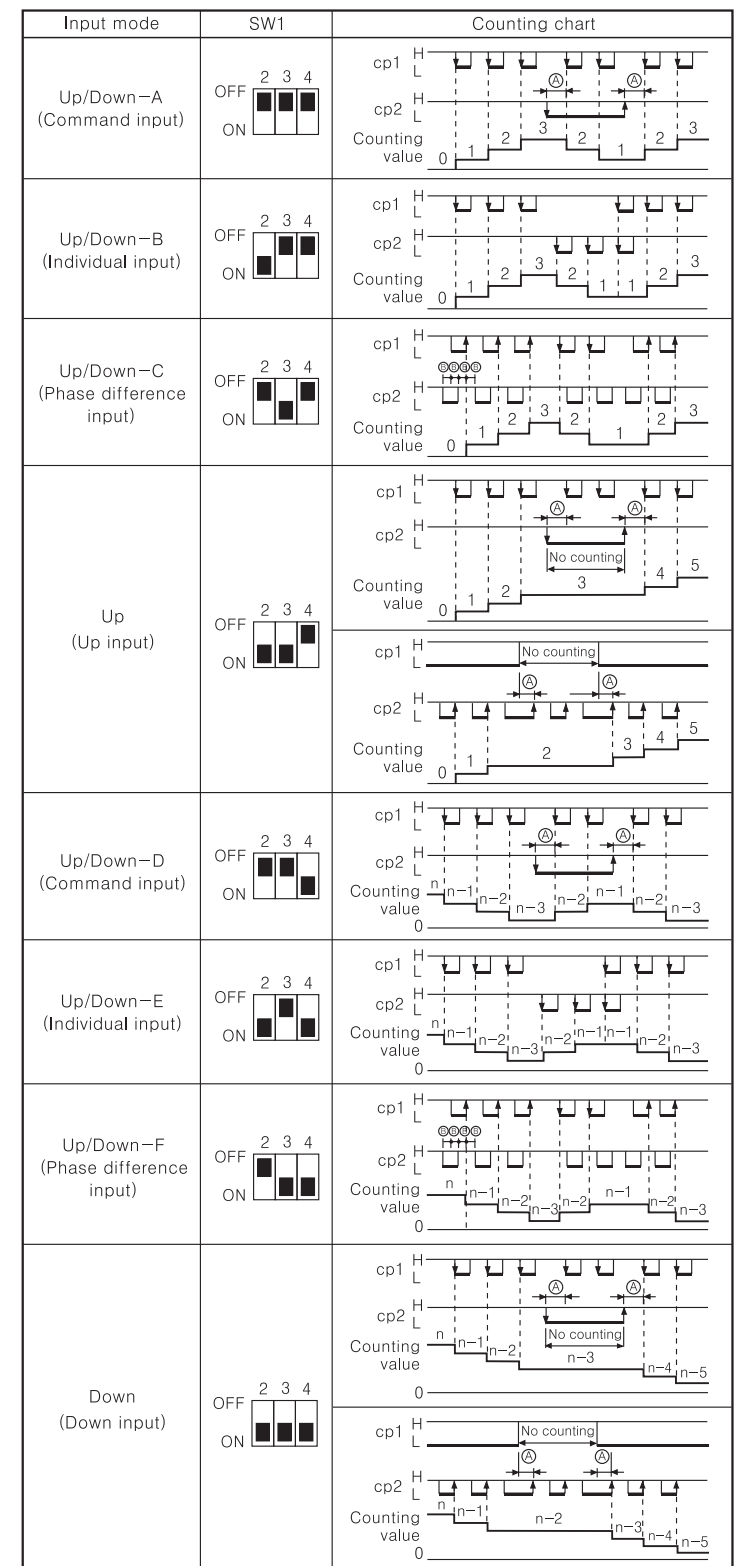
\*CP1, CP2(INHIBIT),  
RESET input part

### PNP transistor output type sensor



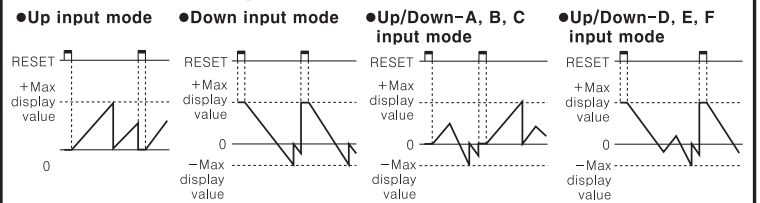
- It is not available to use with PNP output type sensor directly.
- RL : Resistive load of proximity switch (Built in the sensor)
- R1 : Resistor to be connected at outside
- Please set R1 value to make composite resistance of RL+R1 is max. 470Ω. (Be sure that RL value will be different by sensors.)

### Input operation mode(Counter)



\*⊙: Over Min. signal width, ⊕: Over 1/2 of Min. signal width. Counting miss by one (±1) is occurred if the signal width of ⊙ or ⊕ is less than min. signal width.  
\*n : +Max. display value(FX4Y-I:9999, FX6Y-I:999999)

### Counting operation of indication model



### Time setting mode(Timer)

SW1	4digit	6digit	SW1	4digit	6digit
A	99.99sec	99999.9sec	E	999.9min	99999.9min
B	999.9sec	999999sec	F	99hour 59min	99hour 59min 59sec
C	9999sec	99min 59.99sec	G	999.9hour	9999hour 59min
D	99min 59sec	999min 59.9sec	H	9999hour	99999.9hour

### 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.
  - 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.  
④When 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

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/sockets
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate) meters
- Display units
- Sensor controllers
- Switching mode power supplies
- Control switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper motors/drivers/motion controllers
- Graphic/Logic panels
- Field network devices
- Laser marking system(Fiber, CO<sub>2</sub>, Nd:YAG)
- Laser welding/soldering system

**Autonics Corporation**  
http://www.autonics.com

Satisfiable Partner For Factory Automation

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